

U.S. ARMY CORPS
OF ENGINEERS
Toxic and Hazardous
Materials Agency

CAMERON STATION REMEDIAL INVESTIGATION

FINAL ASBESTOS SURVEY REPORT

Delivery Order 0001
Total Environmental
Program Support
Contract No. DAAA15-90-D-0010

February 1992

19980717 026

Distribution unlimited approved for public release.

This asbestos survey report was performed in a manner consistent with that level of care and skill exercised by members of the professional community currently practicing under similar conditions and was in accordance with currently accepted engineering principles and practices.

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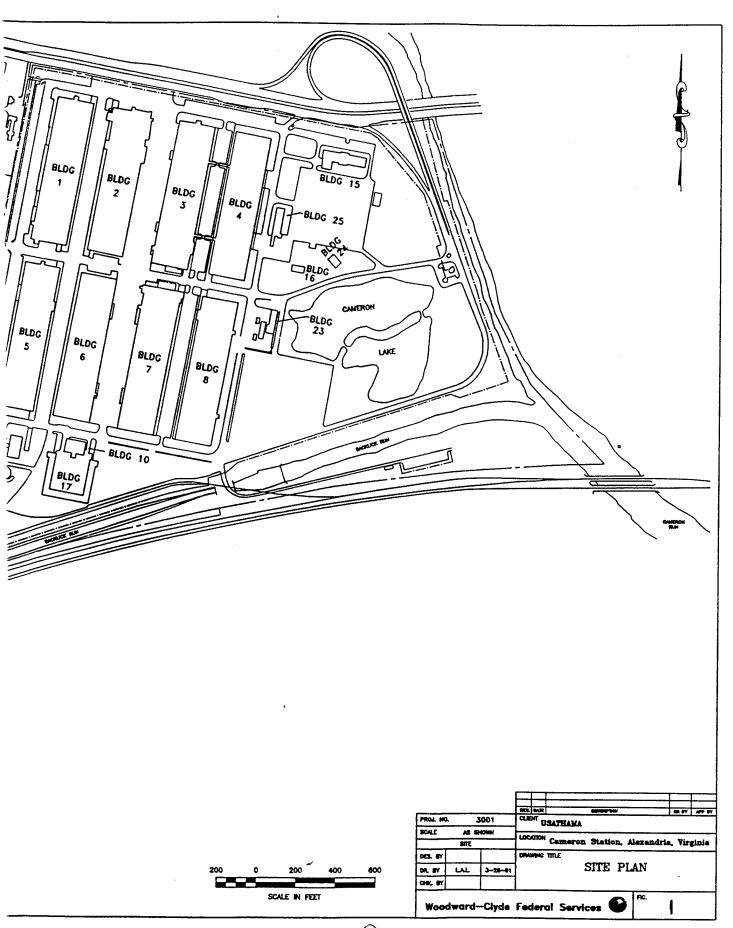
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INTRODUCTION

Woodward-Clyde Federal Services (WCFS) conducted a comprehensive asbestos survey of the facilities at Cameron Station (see figure 1, Site Plan) as part of its contract with the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) to perform a remedial investigation and feasibility study (RI/FS) at the base. The purpose of the survey which was initiated August 23, 1990 in response to the Base Realignment And Closure Environmental Restoration Strategy (BRAC), was to identify friable and non-friable asbestos-containing material (ACM), provide options for abatement of asbestos, provide cost estimates for both abatement and operations and maintenance costs, and identifying actions requiring immediate action in Cameron Station's 24 buildings. BRAC states that only friable asbestos which presents a threat to health and safety shall be removed; non-friable asbestos or friable asbestos which is encapsulated or in good repair shall be left in place and identified to the buyer per GSA agreement. The investigation followed protocols that met or exceeded the requirements of 40 CFR 763, the EPA regulations promulgated under the Asbestos Hazard Emergency Response Act (AHERA).

This report summarizes the results of the asbestos survey and includes the quantity of friable asbestos by building and category.

SURVEY METHODOLOGY

Building surveys were performed by an AHERA-accredited inspection team. Each building investigation consisted of three tasks:

- Records review;
- Walkthrough; and
- Sampling and analysis.

Records Review

In conducting a records review, the inspectors examined documents relating to previous asbestos activities, including the results of past surveys, and reviewed building drawings and finishing schedules if available. Previous survey data alerted the inspection team to areas of known asbestos.

Walkthrough

The team conducted a walkthrough of each building, visually inspecting all accessible interior areas, including offices, hallways, shops, mechanical rooms and attics. Inspections and sampling

were not conducted of the roofs. All roofing materials were assumed to contain asbestos. Prior to demolishing the buildings, additional sampling of the roofs will be required to determine if asbestos is present. At the time of the survey, roof mounted equipment such as air handlers with woven vibration isolators were also assumed to contain asbestos. Installation personnel have indicated that after the survey was completed, asbestos was removed from some of the roof mounted equipment. Any area to which access could not be gained is noted in the individual building report. The types of materials considered included surfacing materials, thermal system insulation and miscellaneous building materials such as floor and ceiling tile. The purpose of the walkthrough was to identify materials suspected to be ACM and to classify them into homogeneous areas for sampling purposes. (A homogeneous area is defined as an area of material that is similar in appearance and texture throughout a building).

For this phase of the inspection, information about the homogeneous areas was recorded on walkthrough survey sheets and floor plans. Quantities were later estimated using either scaled drawings or data provided by the Defense Logistics Agency (DLA) for areas under their occupancy. Information on building history and current occupants was also obtained during the walkthrough.

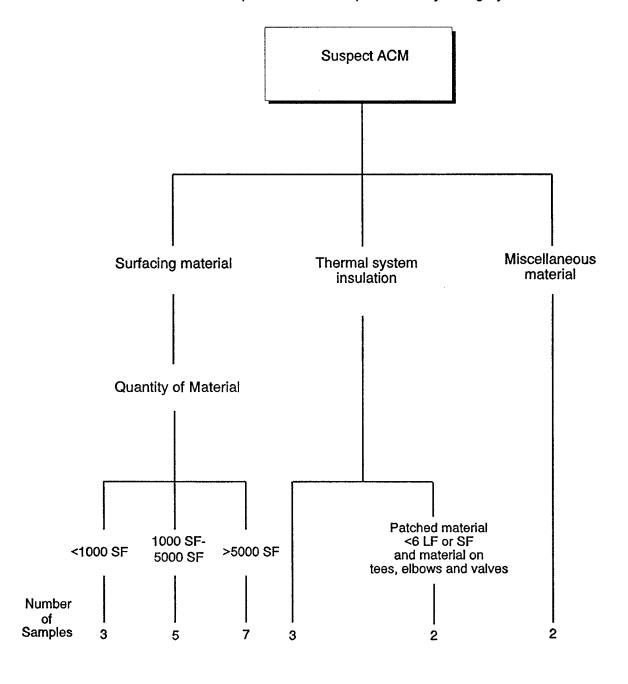
Sample Collection and Analysis

For the third phase of the inspection, the survey team collected 755 bulk samples of suspect materials. Each bulk sample was placed in a container and labeled with a unique sample identification number; the location of each sample was recorded on a building floor plan. Information on the friability and condition of each homogeneous area from which the samples were obtained was also recorded.

The number of samples collected for each homogeneous area was dependent on how it was categorized, i.e., as surfacing, thermal system or miscellaneous material. Sampling requirements are summarized in Exhibit 1 (following page), Sample Collection Requirements By Category. In general, a minimum of two bulk samples per homogeneous area were collected and analyzed. However, at Building 4, only one sample taken from the premolded pipe and tank insulation was submitted to the laboratory. If analysis yielded positive results (i.e., greater than one percent asbestos), the material was listed as asbestos-containing, and no additional samples were analyzed.

For this survey, the inspectors included plaster and gypsum board in the surfacing category in addition to the sprayed- and trowelled-on materials described in the AHERA regulations. Inclusion of these materials under the surfacing classification is in accordance with current industry interpretation of AHERA.

Exhibit 1. Sample Collection Requirements by Category



Thermal system insulation includes material applied to pipes, pipe fittings, boilers, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

The miscellaneous category covers building materials other than surfacing and thermal system insulation and includes items such as floor, ceiling and wall tile.

No destructive sampling was conducted for this survey, i.e., no wall material or thermal system insulation was removed to locate inaccessible materials. Carpet covering was rolled back to determine if floor tile was underneath; however, no attempt was made to determine if more than one layer of tile was present.

Bulk samples were delivered under chain-of-custody requirements to AMA Analytical Services, a laboratory certified by the National Institute of Standards and Technology under the National Voluntary Laboratory Accreditation Program (NVLAP) to perform bulk asbestos analysis by polarized light microscopy (PLM). In addition the laboratory is accredited by the American Industrial Hygiene Association (AIHA).

All bulk samples were analyzed using PLM. As part of its internal quality control (QC) program, the laboratory analyzed all samples by PLM two times using two different microscopists. A certificate of analysis summarizing sample results by building was provided by the laboratory and contained the following information:

- Date analyzed;
- Sample ID number;
- Type(s) and percentage of asbestos found (e.g., 1-5% chrysotile);
- Type(s) and percentage of other fibrous material; and
- Analyst's name.

A second NVLAP-certified laboratory, operated by Dynamac Corporation, was used at the start of this project to analyze three bulk samples using PLM. Certificates of analysis for these samples were provided by the Dynamac laboratory.

To monitor the accuracy of the laboratory's analytical program, the WCFS inspection team submitted QC samples along with the regular samples. (A QC sample is one taken from an area abutting a regular sample. A minimum of one QC sample per building, or one every twenty samples, was submitted.) The laboratory was given no indication which were the QC samples. In no instance was there any discrepancy in the analysis of side-by-side samples.

The laboratory, in addition to analyzing all bulk samples using PLM, reanalyzed 10% of the floor tile samples, identified as negative by PLM, by a second method, transmission electron microscopy (TEM). This was done because the very small asbestos fibers typically used in floor tile may be below the resolution capabilities of PLM. Organic binder materials found in floor tile can also contribute to asbestos identification problems by PLM. The transmission electron microscope provides more conclusive results by showing the sample's structure as well as chemical and refractive properties.

Materials Assumed To Contain Asbestos

In lieu of sampling and analysis, certain building materials such as roofing felt/tar and the ventilation duct vibration dampening cloth found on some air handling units were assumed to contain asbestos. (The roofing materials will require additional sampling to determine if asbestos is present prior to demolishing the buildings. Installation personnel have indicated that after the survey was completed, asbestos was removed from some of the air handling units.) The inspectors made these assumptions based on their past experience with similar materials. In addition, it was determined that sampling these articles would require destructive methods that could compromise the integrity of the roof and cloth. Assuming a material to be asbestos-containing is permitted under AHERA regulations.

SURVEY RESULTS

Table 1 summarizes the inspection data for the approximately 1.4 million square feet of building space surveyed at Cameron Station. In all, 24 buildings were inspected and 295 homogeneous sampling areas were identified. A total of 752 bulk samples, including 43 QC samples, were analyzed using PLM; seven floor tile samples were analyzed a second time using TEM. The survey determined that 19 buildings contain ACM. Of these, 14 buildings contain both friable and non-friable ACM; five buildings contain only non-friable ACM. None of the buildings contain only friable ACM. A material is considered to be ACM if it contains more than one percent asbestos.

Building-by-building survey data, including sample results, sample location drawings, walkthrough survey information, QC sample numbers, laboratory certificates of analysis and chain-of-custody forms are in the individual building reports which follow this introductory discussion.

Table 1. Summary of Survey Findings by Building

			Does Building	Contain ACM
Building No.	Number of Homogeneous Areas	Number of Samples Collected	Friable	Nonfriable
1	30	61	YES	YES
2	22	51	YES	YES
3	20	57	YES	YES
4	20	59	YES	YES
5	21	54	YES	YES
6	26	66	YES	YES
7	26	69	YES	YES
8	14	45	YES	YES
9	19	47	YES	YES
10	6	14	YES	YES
11	0	0	NO	NO
15	19	56	YES	YES
16	4	8	NO	YES
17	23	49	YES	YES
20	3	13	NO	NO
21	18	52	YES	YES
22	5	10	NO	YES
23	4	12	NO	NO
24	0	0	NO	NO
25	9	18	YES	YES
26	1	0	NO	YES
30	0	0	NO	NO
34	3	8	NO	YES
68	2	3	NO	YES

HAZARD ASSESSMENT

WCFS inspectors followed the "Guide For Asbestos Hazard Assessment in U.S. Army Facilities" to characterize the extent of damage/risk and exposure potential for friable ACM identified at Cameron Station.

They completed the two-part checklist included in the "Guide" for each location with friable ACM and, using totals derived from the checklist, determined the appropriate assessment index and corrective action. For example, a location containing friable thermal system insulation was rated 6 for damage/risk and 15 for exposure; the assessment index was listed as "Priority C" and the recommendation was "Planned Action" (see Exhibit 2 and Tables 2 and 3 which follow).

Only two locations with friable ACM are recommended for immediate action. They are:

- Building 7, Bay 3, pipe fitting insulation on the domestic hot water line in the men's restroom. (Installation personnel have indicated that this area was remediated in January 1992.)
- Building 5, Bay 3, breech insulation, pipe fittings and joint sealant in the mechanical room (Room 5B352). (Installation personnel have indicated that this area was remediated in November 1991.)

The remaining areas with friable ACM fall either under Priority B (Action As Soon As Possible, 15 areas) or Priority C (Planned Action, 10 areas). Refer to pages 11 - 25 of the Friable Asbestos section for a review of hazard assessments and recommendations for specific functional spaces within each building. Because it was not within the scope of this contract, nonfriable asbestos-containing materials, such as floor tile, were not assessed. These materials generally pose little hazard; however, as ACM they should be included in an Operations and Maintenance (O&M) Program, which covers a variety of activities (e.g., periodic inspection, repair, proper cleaning) that are directed toward maintaining ACM in an undamaged state.

Exhibit 2. Friable Asbestos Assessment Checklist

Frable Assessor Assessment Checks	, ,
Cameron Station Building / Inspx	Material Type(s) Per fetting inculation 3"-6" w insulation
Homogeneous Sample Area #(s) 4	Material Type(s) Pose fetting insulation
Homogeneous sample Area #(s)	3"-6" w insulation
Functional Space 1-1 attic area Care 45 46	
a Friebility: 6 High: 3 Moderate; (1) Low	
• Amount of Visible Frieble Material: 0 < 10 ft. 1 · 10≤ ft < 100; 27 100 ≤ ft < 100	00; 3 ≥ 1000 ft ₂
 <u>Surface Material</u>: (If more than one material, score roughest; score exposed materials as 'rough'.) 	
Rough; 3 Pitted; 2 Moderato; 1 Smooth	
Ventilation: (Mark all categories that apply; maximum of 7 points.)	
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 0 No	one of the above
• Air Movement: 5 Routine turbulent/abrupt air movement;	No perceptible air flow in area
Activity (Refers to forces such as vibration, water or steam acting on material.)	•
5 High (constant vibration);	
100r: 4 Carpet; 2 Seamed or rough surface; 1 Smooth surface; 0-4 Unique si	inuation (e.g., dirt floor)
Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)	
A. Sprayed- or trowelled-on ceiling or walls	
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None	
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants	•
$(1) \le 25\%$; 2 25 < % ≤ 50 ; 3 50 < % ≤ 75 ; 4 75 < % ≤ 100	
Propulation: 11 & 9 or for contracts,	01 ≤ pop ≤ 1000; 5 > 1001 or medical/youth centers/residential
Exposure Total	Woodward-Clyde Foderal Service

Exhibit 2. Friable Asbestos Assessment Checklist (continued)

Friable Asbest	os Assessment Checklist
Cameron Station Building /	Inspector Barnes Gilarella
Homogeneous Sample Area #(s)	Inspector <u>Barnes Gillarella</u> Material Type(s) <u>pipu fattere insulations</u> 3"-6" w/ imalature
Functional Space a the area Bango 4. 5-4 6	
Part 1	: Damage/Risk
• Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low;	1 Minimal; 0 None
Water damage: 3 Yes;	
Proximity of material to routine maintenance areas: (mark all that apply but score	only the higher of A or B; (maximum score of 3 points.)
3 <1 ft. or ceiling panel contaminated;	2 1≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
5	moval; OYes, routine maintenance required; 0 No routine maintenance
• Type of material (If area contains several friable materials, score the one with the	greatest quantity).
0-4 Other friable material; D Boiler	
esential for Contact based on material proximity to area occupants:	
< 10 ft: 8 High; 5 Medium; (2) Low	
B. \geq 10 ft: 5 High; 3 Medium; 0 Low	
 Asbestos content: Use percentage for material with highest probability for becomi 	ng airborne:
$(1)'_{1} < \% \le 30; 3 30 < \% \le 50; 5 > 50\%;$	NO HAZARD Samples contain no asbestos
• Sample Numbers: . 536,.537, 5383	
Damage/Risk Total	

Woodward-Clyde Federal Service:

November 19, 1990

Table 2. Determination of an Assessment Index

			Exposure Total (From Checklist)
		43-26	25-17	16-8	7-4
	28-17	Α	А	Α	В
Damage/Risk	16-11	Α	В	С	D
Total (From	10-5	Α	В	С	E
Checklist)	4-1	Α	С	D	F

Table 3. Hazard Assessment

Assessment Index	Recommended Management Corrective Action
Priority	
Α	Immediate Action - Isolate area and restrict access to qualified personnel*. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.
В	Action as Soon as Possible - Immediately initiate an O&M Program**. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
С	Planned Action - Initiate an O&M Program**. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
D	Repair - Initiate an O&M Program**. Repair damaged areas so as to contain fiber release. Take preventive measures to reduce further damage. Schedule removal when practical and cost effective.
E Monitoring - Initiate an O&M Program**. Take measures to prevent damage. Routinely m condition of all ACM. Schedule removal to coincide with major renovation to or demolition building.	
F	No Immediate Action - Initiate an O&M Program**. Schedule removal to coincide with major renovation to or demolition of the building.

^{*}Qualified personnel are those persons who have training in the specific areas for which they will be responsible.

^{**} An O&M Program covers a variety of activities (e.g., periodic inspection, repair proper cleaning) that are directed toward maintaining asbestos-containing material in an undamaged state. O&M also includes partial removal of ACM required for renovation, replacement, or repair of other building systems or materials.

FRIABLE ASBESTOS

Table 4, Quantity Of Friable Asbestos, summarizes the quantity of friable asbestos-containing material by category located in each building. (Only those Buildings where friable asbestos-containing material is located are listed.) The following tables review the friable ACM assessment/recommendation for each building.

TABLE 4

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
1		220 MF	100 MF
2		5050 SF TSI 100 MF	575 MF 200 LF TSI
3		6 MF *	
4		18 MF 8 SF TSI *	< 10 SF TSI
5	5000 SF TSI 100 MF		200 MF
6		100 MF	
7 .	40 LF PI 12 MF	> 115 MF 260 SF TSI	
8			75 LF PI
9		50 SF TSI	34 MF 70 LF PI
10			24 LF PI
15		460 LF PI 32 MF	
17		320 LF PI	
21		2774 SF TSI 651 LF PI	
25		20 LF PI	

 $TSI = THERMAL \ SYSTEM \ INSULATION$

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
	GAHA	6	O
	Exposure Factor	24	Γ
	Damage/Risk Factor	16	ω
Material Description	Type (e.g. pipe fitting insulation)	Pipe fitting insulation	Pipe fitting insulation
Materia	Category (surfacing TSI or misc.)	TSI	ist
	Homogen- eous Sample Area	4	4
	Functional Space Building - Space	1-1 Bay 5, Mechanical Room	1-1 Bays 4, 5 & 6, Attic areas

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		Materia	Material Description				
Functional Space Building-Space	Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
2-1 Bay 1, boiler room	6, 7	TSI	Pipe fitting insulation; corrugated paper pipe insulation	10	16	U	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-2 Bay 1, attic	7	TSI	Corrugated paper pipe insulation	ហ	8	۵	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-3 Bay 2, attic	3, 5, 6, 7	TSI	Tank insula- tion; trowelled- on duct insula- tion; pipe insulation	12	20	ω	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-4 Bay 4, mechanical room	ဖ	TSI	Pipe fitting insulation	ഹ	9	v	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-5 Bay 6, attic	6, 7	ISI	Pipe fitting insulation; corrugated paper pipe insulation	ഗ	9	O	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

	Recommended Management Corrective Action	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GАНА Index	6	ω
	Exposure Factor	22	23
	Damage/Risk Factor	91	6
Material Description	Type (e.g. pipe fitting insulation)	Debris	Pipe fitting insulation
Materia	Category (surfacing TSI or misc.)	TSI	<u>r</u>
	Homogen- eous Sample Area	ю	4
	Functional Space Building-Space	3-1 Bays 2, 5 & 6	3-2 Bay 6, mechanical room

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	Recommended Management Corrective Action	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule correction action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
	GAHA	ω	O
	Exposure Factor	22	<u>ო</u>
	Damage/Risk Factor	16	ιλ
Material Description	Type (e.g. pipe fitting insulation)	Premolded pipe insulation, tank insulation, pipe fitting insulation, tank tion, debris	Pipe fitting insulation
Materia	Category (surfacing TSI or misc.)	TSI	<u>κ</u>
	Homogen- eous Sample Area	3, 4, 5, 6	ហ
	Functional Space Building - Space	4-1 Bays 3, 4, 5, & 6 Attic areas	4-2 Bay 6, Rm 4B687

1

	Recommended Management Corrective Action	Immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
	GAHA	₫	v
	Exposure Factor	23	τ.
	Damage/Risk Factor	<u>ه</u>	ω
Material Description	Type (e.g. pipe fitting insulation)	Breech insulation, pipe fitting insulation, joint sealant	Pipe fitting insulation
Materi	Category (surfacing TSI or misc.)	TSI	TSI
	Homogen- eous Sample Area	4, 5, 6	7
	Functional Space Building - Space	5-1 Bay 3, Room 5B352, mechani- cal room	5-2 Bays 1, 2, & 3, attic areas

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	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	ω
	Exposure Factor	17
	Damage/Risk Factor	7
Material Description	Type (e.g. pipe fitting insulation)	Pipe fitting insulation
Materi	Category (surfacing TSI or misc.)	1SI
	Homogen- eous Sample Area	4
	Functional Space Building - Space	6-1 Bays 1, 2 and 3, attic areas

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.
	GAHA	ω	ω	⋖
	Exposure Factor	23	25	<u>o</u>
	Damage/Risk Factor	41	12	23
Material Description	Type (e.g. pipe fitting insulation)	Pipe fitting insulation	Boiler insulation, pipe fitting insulation	Pipe fitting insulation
	Category (surfacing TSI or misc.)	TSI	IST	TS.
	Homogen- eous Sample Area	က	5, 7	ი
	Functional Space Building - Space	7-1 Bay 1, attic	7-2 Bay 1, mechanical room	7-3 Bay 3, restroom, domestic hot water line

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	Recommended Management Corrective Action	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
	GAHA Index	v
	Exposure Factor	19
	Damage/Risk Factor	m
Material Description	Type (e.g. pipe fitting insulation)	Corrugated paper pipe insulation
Materia	Category (surfacing TSI or misc.)	TSI .
	Homogen- eous Sample Area	ഥ
	Functional Space Building - Space	8-1 Bay 1, attic, north wall

		r	Tr. Warriet	
	Recommended Management Corrective Action	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	υ	U	۵
	Exposure Factor	14	4	19
	Damage/Risk Factor	10	01	13
Material Description	Type (e.g. pipe fitting insulation)	Pipe fitting insulation	Pipe fitting insulation, corrugated paper pipe insulation	Trowelled-on duct insulation
Material	Category (surfacing TSI or misc.)	TSI	1ST	TSI
	Homogen- eous Sample Area	2	2, 4	ю
	Functional Space Building - Space	9-1 Bay 5, along east wall and above office area	9-2 Bay 1, attic area above Door 8, restroom and storage area	9-3 Bay 1, inside Door 8

	Recommended Management Corrective Action	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
	GAHA Index	O
	Exposure Factor	4-
	Damage/Risk Factor	10
Material Description	Type (e.g. pipe fitting insulation)	Corrugated paper pipe insulation
	Category (surfacing TSI or misc.)	TSI
	Homogen- eous Sample Area	2
	Functional Space Building - Space	10-1

		Materia	Material Description				
Functional Space Building - Space	Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure	GAHA Index	Recommended Management Corrective Action
15-1 Basement reproduction work area	, 6	TSI	Corrugated paper pipe insulation; pipe fitting insulation	91	22	ω	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
15-2 First floor corridor	74	TSI	Corrugated paper pipe insulation	ω	<u>ი</u>	ω	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	ω
	Exposure Factor	6-
	Damage/Risk Factor	31
Material Description	Type (e.g. pipe fitting insulation)	Premolded pipe insulation
Materia	Category (surfacing TSI or misc.)	TSI
	Homogen- eous Sample Area	м
	Functional Space Building - Space	17.1

	T	
	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	ω
	Exposure	24
	Damage/Risk Factor	75
Material Description	Type (e.g. pipe fitting insulation)	Trowelled-on, blanket, premolded, and corrugated paper pipe insulation
Material	Category (surfacing TSI or misc.)	IST
	Homogen- eous Sample Area	2, 5, 6, 7, 8, 9, 10, 11, 12, 14
	Functional Space Building - Space	21-1

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removel) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	- α
	Exposure Factor	17
	Damage/Risk Factor	7
Material Description	Type (e.g. pipe fitting insulation)	Corrugated paper pipe insulation
Materia	Category (surfacing TSI or misc.)	<u>₹</u>
	Homogen- eous Sample Area	n
	Functional Space Building - Space	25-1 Food preparation area adjacent to steam room

REPORT FORMAT

The remainder of this document consists of the following three attachments:

- Attachment 1 is a list of acronyms and abbreviations used throughout the report;
- Attachment 2 includes the certificates of accreditation for the analytical laboratories and the inspection team; and
- Attachment 3 includes the results of the asbestos investigation on a building-by-building basis and is divided into 24 sections. Each building report contains a short introduction and, depending on the survey findings, also contains one or more of the following seven appendices:
 - Appendix A, ACM Survey Results. This appendix, which consists of a table summarizing survey results, is included if the inspection team identified any suspect ACM, either friable or nonfriable, in the building.
 - Appendix B, Assessments/Recommendations for Friable ACM. This appendix is included if the inspection team identified friable ACM in the building. It consists of a table summarizing the recommended corrective action for each location with friable ACM and is followed by the assessment checklists used to determine these recommendations.
 - Appendix C, Building Drawings. Drawings are included to show bulk sample locations and, in the larger buildings, to indicate where different types of floor tile and ceilings were found. If no samples were collected in the building, this appendix is omitted.
 - Appendix D, Walkthrough Survey Data Sheets. All building reports contain this appendix. These data sheets list the results of the inspection team's walkthrough survey and indicate whether or not any suspect ACM was identified.
 - Appendix E, Laboratory Certificates of Analysis. Signed certificates of analysis using PLM are included for each building in which bulk samples were collected. If any analysis using TEM was performed, a letter certifying the results is also included in this appendix.

Appendix F, Chain-of-Custody Forms. These forms are included for each building in which bulk samples were collected.

In the individual building reports these appendices are designated by the building number in addition to the letter (e.g., Appendix 16-A refers to Building 16, ACM Survey Results).

ATTACHMENT 1 ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

The following is a list of acronyms and abbreviations used throughout this document:

AAFES	Army and Air Faras Evahance Carrias
	Army and Air Force Exchange Service
• ACM	Asbestos-containing material(s)
AHERA	Asbestos Hazard Emergency Response Act
• AHU	Air handling unit
• CFR	Code of Federal Regulations
• DLA	Defense Logistics Agency
• DTIC	Defense Technical Information Center
• EA,CA	Engineering Activity, Capital Area
• EPA	Environmental Protection Agency
• GAHA	Guide For Asbestos Hazard Assessment
• HEPA	High efficiency particulate air
• HVAC	Heating, ventilation and air conditioning
• MDW	Military District of Washington
NESHAP	National Emission Standards for Hazardous Air Pollutants
• O&M	Operations and maintenance
• PLM	Polarized light microscopy
• RI/FS	Remedial investigation/feasibility study
• TEM	Transmission electron microscopy
• TSI	Thermal system insulation
• USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
• VAT	Vinyl asbestos tile

Woodward-Clyde Federal Services

• WCFS

ATTACHMENT 2 CERTIFICATES OF ACCREDITATION

AMA Analytical Services, Inc.

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

AMA Analytical Services, Inc. Lanham, MD

has fulfilled AIHA criteria for Industrial Hygiene Laboratory Accreditation since March 1, 1984.

This accreditation shall be effective until the 1st day of March 1993 subject to continued compliance with AIHA accreditation criteria.

Janiste a. 7	rley
Chairman	1
Labortary Accreditation	0
Committee	

244

Accreditation Number

11

March 1, 1991

Association

American Industrial Hygiene

Date

Certificate of Accreditation

AMA ANALYTICAL SERVICES, INC. LANHAM SEABROOK, ND

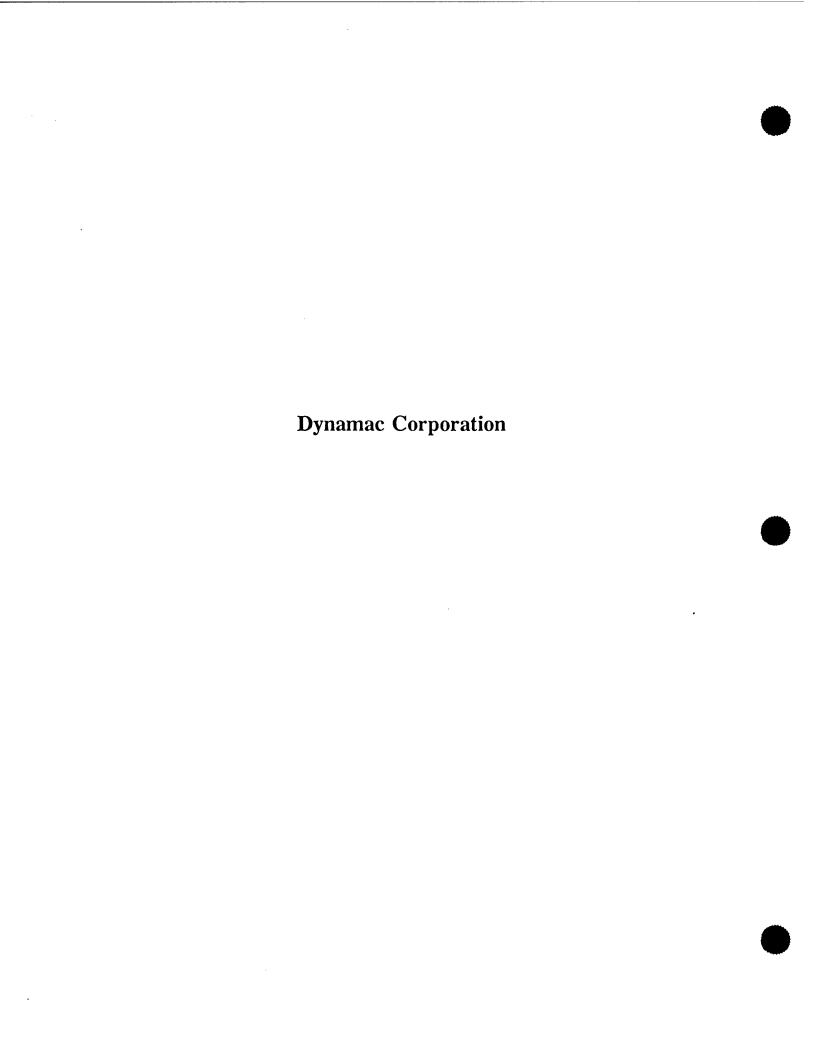
is recognized under the National Voluntary Laboratory Accreditation Program for salisfactory compliance with criteria established in Title 15. Part 7 Code of Federal Regulations. Accreditation is awarded for specific services. Iisted on the Scope of Accreditation. for

BUIK ASBESTOS FIBER ANALYSIS



April 1, 1992 Effetire until

For the Rational Definite of Stumburk and Terk



National Institute of Standards and Technology United States Department of Commerce

Certificate of Accreditation

DYNAMAC INTERNATIONAL ROCKVILLE, MD

for salisfactory compliance with criteria established in Title 15. Part 7 Code of Feekral Regulations. Accordination is an unded for specific services. listed on the Scope of Accreditation. for is recognized under the National Voluntary Laboratory Accreditation Program

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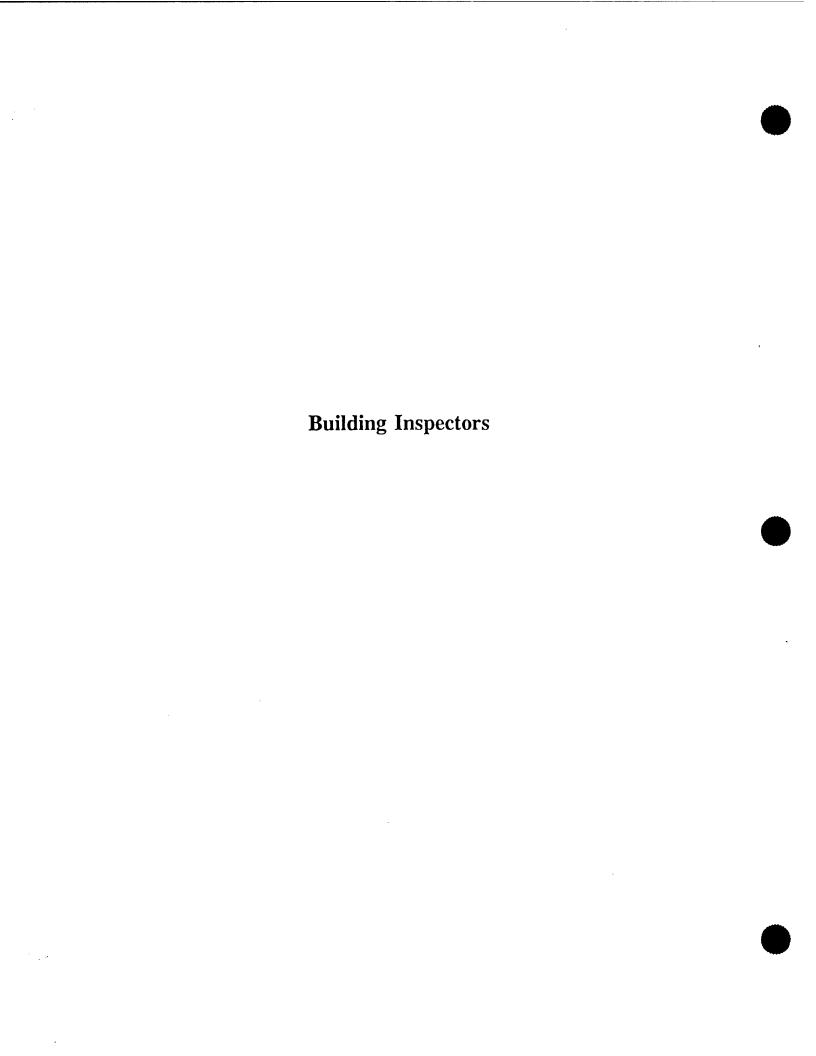
O IN THE RCE

Elbedie mutil

January 1, 1992

NVIAP LAB CODE:

1843





This is to certify that

David M. Barnes

has successfully completed an EPA approved course for

Building Inspectors

entitled

Asbestos Hazards, Abatement and Protection

given

November 5-7, 1990

90-11-07-02 Certification Number November 7, 1991 Certification Expires

ACEL. EQU

larkel Riber

Course Director

THIS COURSE MEETS THE MARYLAND STATE TRAINING REQUIREMENTS (BIOSPHERICS APFROVAL #21-17-10). THIS TRAINEE HAS SUCCESSFULLY PASSED OUR EXAMINATION

DYNAMAC

CORPORATION

DYNAMAC TRAINING CENTER

THIS CERTIFIES THAT:

F.B. SALLY GUARDIA

has completed a four-hour AHERA/EPA-approved annual refresher course for

Asbestos-Containing Materials Inspecting Buildings for



Course Date: Expiration Date:

October 2, 1990 October 2, 1991

ID Number: 213-38-6726-90

General Mere Director



CORPORATION

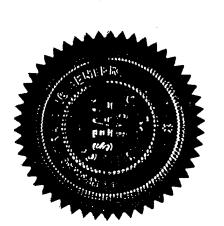
DYNAMAC TRAINING CENTER

THIS CERTIFIES THAT:

F.B. SALLY GUARDIA

has completed a four-hour AHERA/EPA-approved annual refresher course for

Managing Asbestos in Buildings



Course Date: October 2, 1990 Expiration Date: October 2, 1991

ID Number: 213-38-6726-90

League Man

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF COMMERCE

3800 West Broad Street, Richmond, VA 23230

Telephone: 1 (804) 367-8500

VIRGINIA ASBESTOS LICENSE INSPECTOR LICENSE

EXPIRES

09-30-91

NUMBER 3303 001230

F B SALLY GUARDIA

100 NEW MARK ESPI.ANADE.

ROCKVILLE, MD 20850

(SEE REVERSE SIDE FOR HAME AND/OR ADDRESS CHANGE)

Milton K. Brown, Jr.,

3303001230 . -

(DETACH HERE)

COMMONWEALTH OF VIRGINIA — DEPARTMENT OF COMMERCE — 3600 West Broad Street Richmond, Virginia 23230 VIRGINIA ASBESTOS LICENSE INSPECTOR LICENSE

NUMBER

3303001230

EXPIRES

09-30-91

F B SALLY GUARDIA

100 NEW MARK ESPLANADE.

ROCKVILLE, MD 20850

ATTACHMENT 3 BUILDING REPORTS

BUILDING 1

1.1 DESCRIPTION

Building 1 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof, typical of buildings at Cameron Station, is constructed of tar, felt and gravel over wood. The building is divided into six bays by masonry firewalls. Originally designed as a warehouse, it has been partially converted to office and retail space with overhead areas that house the HVAC system. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and gypsum board. A cementitious board is on the ceiling of a locked storage room in Bay 3. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Current occupants are:

- Joint Personal Property Shipping Office (JPPSO)
- Army and Air Force Exchange Service (AAFES) Class VI Store
- Post Exchange
- Institute of Heraldry

1.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 1-A through 1-F. A summary of this data is presented below.

1.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and seven bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the pipe fitting insulation in the attic areas of Bays 4, 5 and 6 and the mechanical room, Bay 5.

This material was found in two functional spaces and was assessed as follows:

- Assessment of the pipe fitting insulation in the attic areas indicates a damage factor of 6
 and an exposure factor of 15. According to the GAHA Index, this material ranks as Priority
 C.
- Assessment of the pipe fitting insulation in the mechanical room indicates a damage factor of 16 and an exposure factor of 24. According to the GAHA Index, this material ranks as Priority B.

1.2.2 Suspect Nonfriable ACM

Twenty-two homogeneous areas of suspect nonfriable ACM were identified and fifty-four bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eleven materials:

- Joint Sealant
- FT 1 12" x 12" green floor tile and mastic.
- FT 2 12" x 12" black floor tile and mastic
- FT 3
 9" x 9" brown floor tile and mastic
- FT 4 12" x 12" white with streaks floor tile and mastic
- FT 5 9" x 9" gray floor tile and mastic
- FT 6 9" x 9" white floor tile and mastic
- FT 9 9" x 9" dark brown floor tile and mastic
- FT 11 12" x 12" brown floor tile and mastic
- FT 16 9" x 9" orange floor tile and mastic
- Cement board

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

1.2.3 Material Assumed To Contain Asbestos

The following six homogeneous areas are assumed to be ACM.

- Tar and felt roofing material
- Vibration cloth
- FT 12
 9" x 9" light green floor tile and mastic
- FT 13 9" x 9" dark green floor tile and mastic
- FT 14
 9" x 9" black floor tile and mastic
- FT 15 9" x 9" light brown floor tile and mastic

The floor tiles are assumed to be ACM (rather than sampled) because they are interspersed, in limited amounts, with another tile that contains asbestos. No assessment of these materials was performed. However, as ACM they should be included in an O&M Program.

1.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

1.4 AREAS NOT ACCESSED

The following area in Building 1 was not accessed.

Bay 3, unnumbered room along west wall near storage area

1.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
1		220 MF	100 MF

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

1.6 REPORT APPENDICES

The following appendices apply to this building.

Appendix 1-A ACM Survey Results

Appendix 1-B Assessments/Recommendations for Friable ACM

Appendix 1-C Building Drawings

Appendix 1-D Walkthrough Survey Data Sheets

Appendix 1-E Laboratory Certificate of Analysis

Appendix 1-F Sample Chain-of-Custody Forms

APPENDIX 1-A ACM SURVEY RESULTS

ACM Survey Results for Building 1

	Comments			16"-18" fittings with insulation and 2' x 3' expansion tank	3"-6" fittings with insulation Sample 538 is a QC for Sample 537.	This material is found on ends and seams of fiberglass-insulated pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located.
	Sample Results (% and type of asbestos)	Assume ACM	Assume ACM	None detected None detected None detected	5-10% chrysotile 15-20% chrysotile 5-10% chrysotile 85-90% chrysotile	1-5% chrysotile 1-5% chrysotile
	Sample #	Assume ACM	Assume ACM	535 553 554	536 537 538 570	831
tity	Unit of Measure- ment (SF, LF or # of fittings)	SF	r.	# of fittings	# of fittings	Ą
Quantity	Estimated Amount	130000	09	G	320	28000
	Condition (Good, Fair, or Poor)	poog	poog	Poor	Good	Good
	Friability (Non, Low, Mod. or High)	Non	Non	High	Low High	Non
	Location (where material is found)	Roof	Bays 4, 5 and 6, on AHU's in attic areas	Bay 6, Mechanical room and attic	Bays 4, 5, 6, attic areas Bay 5, mechanical room	Bays 4, 5, 6, attic areas
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt	Vibration cloth	Pipe fitting insulation	Pipe fitting insulation	Joint sealant
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	TSI	TSI	1S
	Homogen- eous Sample Area	-	2	ო	4	ហ

Woodward-Clyde Federal Services July 2, 1991

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ACM Survey Results 1... Building 1 (continued)

T						
	Comments	CT 1 2' x 4' white w/fissures	CT 2 12" x 12" white w/random holes. Sample 556 is a QC for sample 555,	CT 3 2' x 4' white, smooth	CT 4 2' x 2' rough w/small holes	
	Sample Results (% and type of asbestos)	None detected None detected	None detected None detected None detected	None detected None detected	None detected None detected	
	Sample #	543 545	546 555 556	541 551	540 542	
tity	Unit of Measure- ment (SF, LF or # of fittings)	я.	S.	R F	n T	
Quantity	Estimated Amount	83000	930	475	1000	
	Condition (Good, Fair, or Poor)	poog	Good	Poog	poog	
	Friability (Non, Low, Mod. or High)	Non	Non	N o V	Non	
	Location (where material is found)	See Drawings 1/1-CT 1/2-CT 1/3-CT 1/4-CT 1/6-CT	See Drawings 1/1-CT 1/6-CT	See Drawing 1/6-CT	See Drawing 1/6-CT	
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Ceiling tile	Ceiling tile	Ceiling tile	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc,	Misc.	
	Homogen- eous Sample Area	ω	7	ω	on .	

	Comments	FT 1 12" x 12" green floor tile	FT 2 12" x 12" black floor tile	FT 3 9" x 9" brown floor tile	FT 4 12" x 12" white w/streaks floor tile	FT 4a 12" x 12" white w/speckles floor tile. It covers FT 4 in most areas in the employee lounge.
	Sample Results (% and type of asbestos)	1-5% chrysotile 5-10% chrysotile	1-5% chrysotile 1-5% chrysotile	1-5% chrysotile 1-5% chrysotile	None detected 1-5% chrysotile	None detected None detected
	Sample #	576 582	579 581	588 586 586	548 569	649 00
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	R F	R.	п П	n n	ω L
Quantity	Estimated Amount	8000	8000	260	20000	1000
	Condition (Good, Fair, or Poor)	Good	goog	Good	P009	D000
	Friability (Non, Low, Mod. or High)	Non	Non	Non	CON	C O
	Location (where material is found)	See Drawing 1/1-FT	See Drawing 1/2-FT	Bay 1, Ladies Restroom See Drawing 1/1-FT	See Drawings 1/3-FT 1/4-FT 1/5-FT	Bay 6 Employee lounge See Drawing 1/6-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	10	=	12	13	4.

ACM Survey Results To Building 1 (continued)

								I
	Comments	FT 5 9" x 9" gray floor tile	FT 6 9" x 9" white floor tile	FT 7 12" x 12" white & brown marbled floor tile	FT 8 12" x 12" brown floor tile	FT 9 9" x 9" dark brown floor tile		·
	Sample Results (% and type of esbestos)	1-5% chrysotile <1% chrysotile	5-10% chrysotile 1-5% chrysotile	None detected None detected	None detected None detected	1-5% chrysotile 1-5% chrysotile		
	Sample #	565 566	567 568	561 562	591 592	593 594		
tity	Unit of Measure- ment (SF, LF or # of fittings)	SF	S	R F	٦ F	SF		
Quantity	Estimated Amount	1080	1080	220	6225	400		
	Condition (Good, Fair, or Poor)	Poop	Bood	Poog	goog	Good		
	Friability (Non, Low, Mod. or High)	Non	Non	Non	Non	Non		
	Location (where material is found)	See Drawing 1/6-FT	See Drawing 1/6-FT	See Drawing 1/6-FT	See Drawing 1/2-FT	See Drawing 1/2-FT		
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic		
Material C	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.		
	Homogen- eous Sample Area	15	91	17	18	6		

	Comments	FT 10 12" x 12" brown w/speckles floor tile	FT 11 12" x 12" brown floor tile	FT 12 9" x 9" light green replacement floor tile	FT 13 9" x 9" dark green replacement floor tile	
	Sample Results (% and type of asbestos)	None detected None detected¹ <1% chrysotile²	1-5% chrysotile 5-10% chrysotile	Assume ACM	Assume ACM	' Using PLM 2 Using TEM
	Sample #	563 564	\$73 574	Assume ACM	Assume ACM	
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	n T	r L	г.	
Quantity	Estimated Amount	6500	300	05 >	° 50 ° 7	
	Condition (Good, Fair, or Poor)	poog	poog	poog	900g	
	Friability (Non, Low, Mod. or High)	Non	C O V	C O V	c o X	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	Location (where material is found)	See Drawings 1/5-FT 1/6-FT	Bay 1, Computer room See Drawing 1/1-FT	Bay 1, Computer room See Drawing 1/1-FT	Bay 1, Computer room See Drawing 1/1-FT	
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	
	Homogen- eous Sample Area	50	21	22	23	

ACM Survey Results T. Building 1 (continued)

	т				
	Comments	FT 14 9" x 9" black replacement floor tile	FT 15 9" x 9" It. brown replacement floor tile	FT 16 9" x 9" orange-brown floor tile	FT 17 12" × 12" off-white floor tile
	Sample Results (% and type of asbestos)	Assume ACM	Assume ACM	1-5% chrysotile 1-5% chrysotile	None detected None detected
	Sample #	Assume ACM	Assume ACM	587 588	0 0 0 0
tity	Unit of Measure- ment (SF, LF or # of fittings)	F.	R.	π π	π.
Quantity	Estimated Amount	< 50	010	260	001
	Condition (Good, Fair, or Poor)	poog	poog	Good	P000
	Friability (Non, Low, Mod. or High)	r o N	c o N	Non	o V
	Location (where material is found)	Bay 1, Computer room See Drawing	Bay 1, Computer room See Drawing 1/1-FT	Bay 1, Men's restroom See Drawing 1/1-FT	Bay 1, Entrance See Drawing 1/1-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	24	52	. 6	27

ACM Survey Results to Building 1 (continued)

APPENDIX 1-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/R. Jmmendation for Building 1

	Recommended Management Corrective Action	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	
	GAHA Index	O	ω	
	Exposure Factor	15	24	
	Damage/Risk Factor	ω	9	
Material Description	Type (e.g. pipe fitting insulation)	Pipe fitting insulation	Pipe fitting insulation	
Material	Category (surfacing TSI or misc.)	TSI	TSI	-
	Homogen- eous Sample Area	4	4	
	Functional Space	1-1 Bays 4, 5 & 6, Attic areas	1-2 Bay 5, Mechanical Room	

				Friable Asbestos Assessment Checklist	nent Checklist	
Cameron Station	Building	/			Inspector	Bornes (Pelantie
Usmogeneous Semule Area #(s)	Area #(s)	7			Material	Material Type(s) Grow fulton, torcu
Functional Space (- 1 2th c 2010)	athe	arlas	Cano 45 K	15 8 6) -, E

Part 2: Exposure

" w insulation

3 Moderate; (1) Low 6 High; Friability:

- Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $1 \cdot 10 \le \text{ ft}^2 < 100$; $\left(2\right) 100 \le \text{ ft}^2 < 1000$;
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

1 Smooth Rough; 3 Pitted; 2 Moderate;

- Ventilation: (Mark all categories that apply; maximum of 7 points.)
- 5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 6 None of the above
- 0 No perceptible air flow in area • Air Movement: 5 Routine turbulent/abrupt air movement; ② Perceptible/occasional air stream;
- Activity (Refers to forces such as vibration, water or steam acting on material.)
- 5 High (constant vibration); (2) Medium (occasional vibration);

0 Low

- 0-4 Unique situation (e.g., dirt floor) 1 Smooth surface; 4 Carpet; (2) Seamed or rough surface;
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
- A. Sprayed- or trowelled-on ceiling or walls
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire;
- B. Pipe, boiler, duct or other material percent of total exposed and visible to occupants
- 4 75 < % < 100 $3 50 < \% \le 75;$ 2 $25 < \% \le 50$; $(1/ \le 25\%;$
- 5 > 1001 or medical/youth centers/residential 4 501 ≤ pop ≤ 1000; 3 $201 \le \text{pop} \le 500$ 2 $10 \le \text{pop} \le 200$; • Population: $(1) \le 9$ or for corridors;

Exposure Total

November 19, 1990

Woodward-Clyde Federal Services

2	
Inspector	

Barnes/ Pilanlin 3/26/91

Functional Space a Me Alan Homogeneous Sample Area #(s) __

Building.

Cameron Station

Material Type(s)

Part 1: Damage/Risk

4 Moderate; 5 High; Visible evidence of physical damage:

Water damage:

2 Low; (1)Minimal; 0 None oN (0) 3 Yes;

3 <1 ft. or ceiling panel contaminated; $2 \le 1 \le ft < 5$; $1 \ge 5$ ft; $0 \ge 5$ ft & no routine maintenance • Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) A. Sprayed- or trowelled-on:

3 Contaminated ceiling panel requires removal; Tres, routine maintenance required; 0 No routine maintenance B. Pipe, boiler or duct insulation:

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

4 Ceilings/walls 0-4 Other friable material; (1) Boiler/pipe; 3 HVAC;

Potential for Contact based on material proximity to area occupants:

8 High; 5 Medium; (2) Low 5 High; 3 Medium; 0 Low A. < 10 ft:

√ 50 ft:

<u>Asbestos content</u>: Use percentage for material with highest probability for becoming airborne:

NO HAZARD Samples contain no asbestos $(1)^{1} > 8 \le 30; 330 < 8 \le 50; 5 > 50\%;$

Sample Numbers:

, 536,537, 538,

Damage/Risk Total

Woodward-Clyde Federal Services

Checklist
Assessment
Achestos
Fright

Material Type(s) Lypu fulling
unctional Space 1 2 Mechanica (Room)
Part 2: Exposure
Friability: 6 High; 3 Moderate; 1 Low
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $(1)_{10 \le \text{ ft}^2} < 100$; $2 \cdot 100 \le \text{ ft}^2 < 1000$; $3 \ge 1000 \text{ ft}_2$
Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply; maximum of 7 points.)
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (1) None of the above
• Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
• <u>Activity</u> (Refers to forces such as vibration, water or steam acting on material.)
(5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
• Floor: 4 Carpet; 2 Seamed or rough surface; ① Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$1 \le 25\%; 2 \le 5 \le \% \le 50; 3 \le 6 \le \% \le 75; (4) 75 < \% \le 100$
• Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$; $5 > 1001$ or medical/youth centers/residential
Exposure Total 24 Woodward-Clyde Federal Services

November 19, 1990

2/26191

in montation	3".6" w/ incodation		
Inspector/Date Contract After monthly	Maletiai 17Pc(e)		
		Functional Space 1-2 Mechanical Room VSays	
Building	Homogeneous Sample Area #(s)	1-2 Mechani	
Cameron Station	Homogeneous Sa	Functional Space	

Part 1: Damage/Risk

0 None 1 Minimal; 2 Low; (4) Moderate; • Visible evidence of physical damage: 5 High;

& • 3 Yes; Water damage:

• Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance 3 <1 ft. or ceiling panel contaminated; 2 1 \leq ft <5; 1 \geq 5 ft; 0 \geq 5 ft & no routine maintenance A. Sprayed- or trowelled-on:

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

Potential for Contact based on material proximity to area occupants:

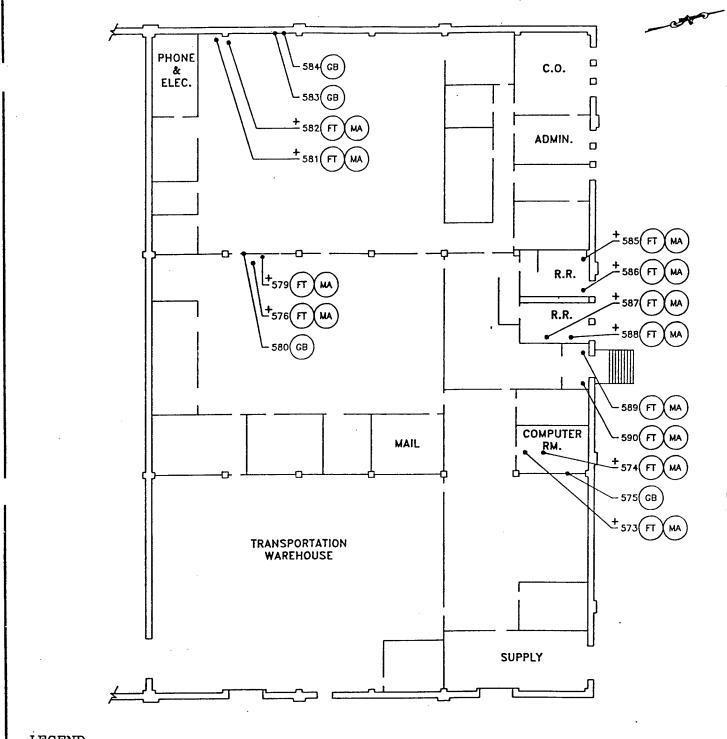
8 High; (5) Medium; 2 Low A. < 10 ft: 0 Low 5 High; 3 Medium; 시 10 ff: • Asbestos content: Use percentage for material with highest probability for becoming airborne:

NO HAZARD Samples contain no asbestos $3 30 < \% \le 50; (5) > 50\%;$ $1 1 < \% \le 30;$

Sample Numbers:

ó Damage/Risk Total Woodward-Clyde Federal Service

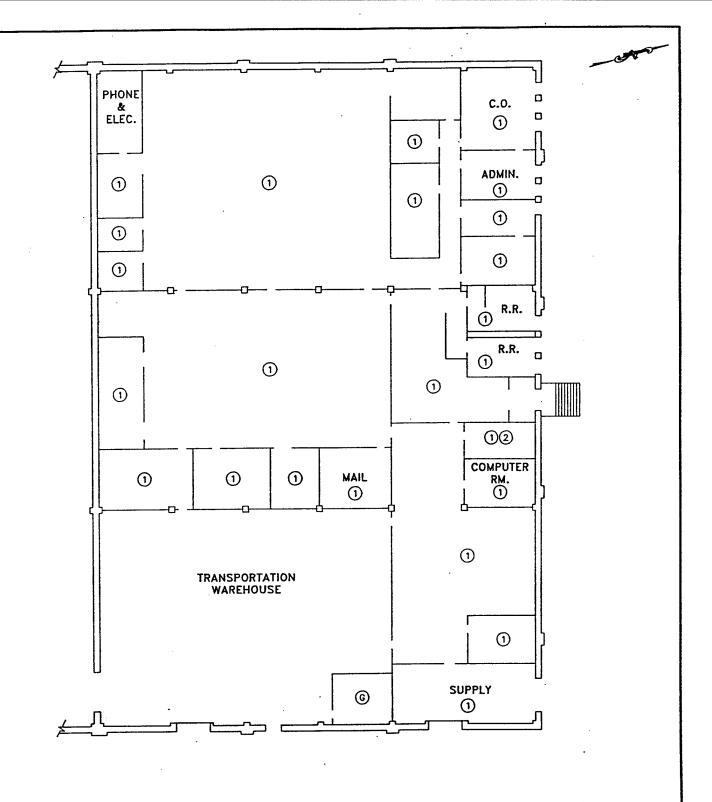
APPENDIX 1-C BUILDING DRAWINGS



LEGEND

- FT FLOOR TILE
- MA MASTIC
- GB GYPSUM BOARD
 - + DENOTES POSITIVE RESULTS

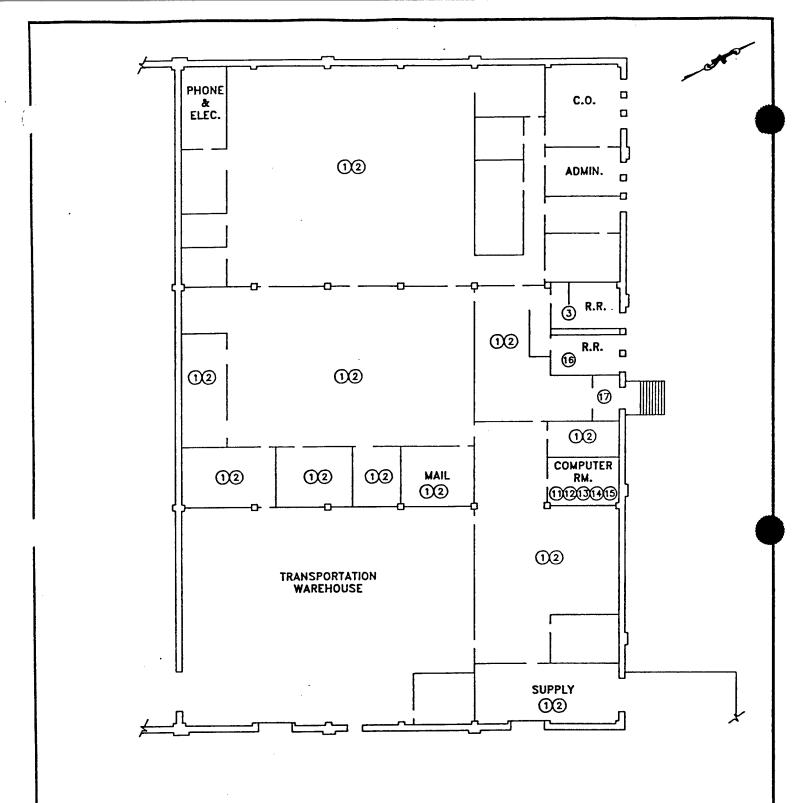
USATHAMA	LOCATION Camero	n Station, Ale	exandria, Virg	inia
Woodward-Clyde	TITLE		1 - BAY 1 LOCATIONS	
Federal Services	PROJECT NO.	DRAWN IN LAL	DATE: 522-91	DWG. HG. 1/1-SL
I EUELUI DELVICES	3001-210	CHECKED WY: F.B.G.	SCALE N.T.S.	1/1-35



LEGEND

- 1 2' x 4' FISSURED TILE
- 2 12 x 12 RANDOM HOLE TILE
- G GYPSUM BOARD

LENT USATHAMA	LOCATION Camero	n Station, Al	exandria,	Virg	inia
Woodward-Clyde	BUILDING 1 — BAY 1 CEILING TYPE LOCATIONS				
Federal Services	PROJECT NO.	DRAWN SY: LAL	DATE:	5-22-91	DWG. NO. 1/1-CT
Ledeldi Selvices	3001-210	CHECKED BY: F.B.G.	SCALE	N.T.S.	1/1-01



LEGEND

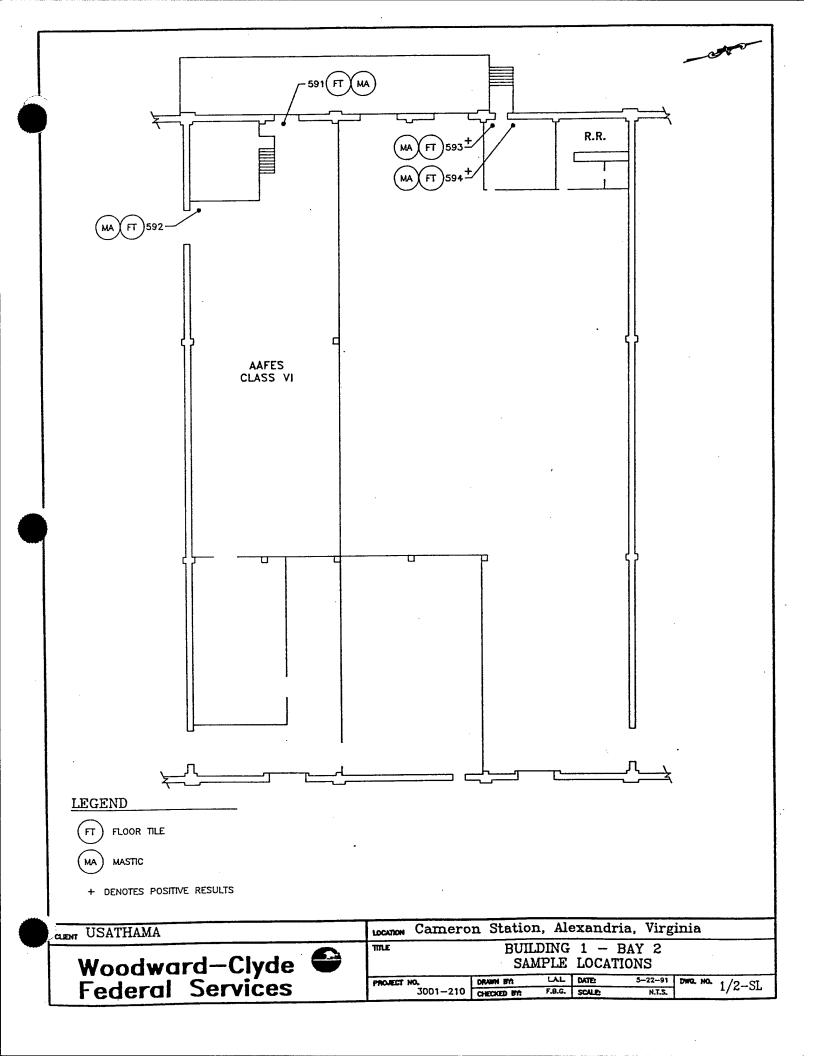
- 1) 12" x 12" GREEN
- (3) 9" x 9" DK. GREEN
- 2 12" x 12" BLACK
- (14) 9" x 9" BLACK
- 3 9" x 9" BROWN
- (15) 9" x 9" LT. BROWN
- 11 12" x 12" BROWN
- (6) 9" x 9" ORANGE-BROWN
- (12) 9" x 9" LT. GREEN
- (17) 12" x 12" OFF-WHITE

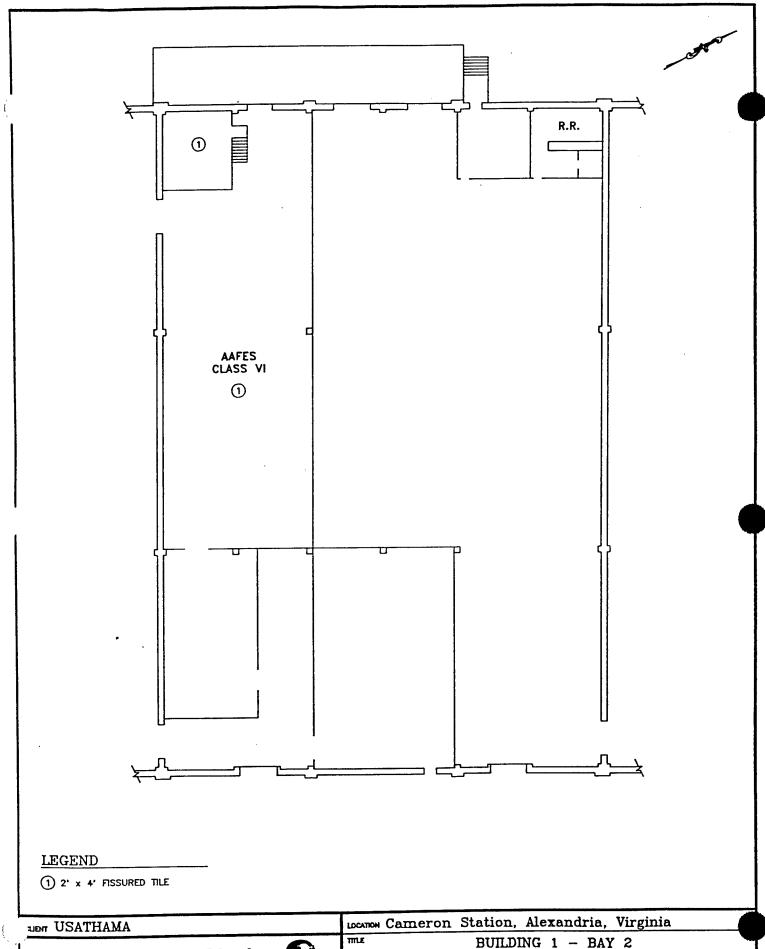
CLIENT USATHAMA

Woodward-Clyde Federal Services



	LOCATION Camero	n Station	ı, Ale	xandri	la, Virgi	nia
	TITLE	BUIL	DING	1 - I	BAY 1	
FLOOR TILE LOCATIONS						
	PROJECT NO.	DRAWN BY:	LAL	DATE:	5-22-91	DWG. NO.1/1-FT
	3001-210	CHECKED EM:	F.B.G.	SCALE:	N.T.S.	1/1





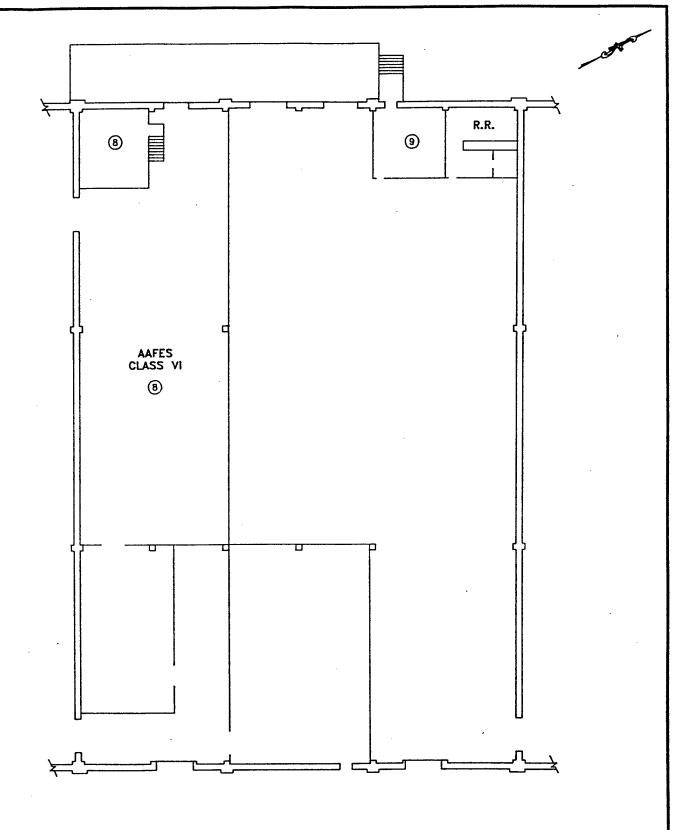
Woodward-Clyde
Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE
BUILDING 1 - BAY 2

CEILING TYPE LOCATIONS

PROJECT NO. DRAWN BY: LAL DATE: 5-22-91 DWG. NG. 1/2-CT



LEGEND

CLIENT USATHAMA

- 8 12" x 12" BROWN
- 9 9 x 9 DK. BROWN

Woodward-Clyde Federal Services

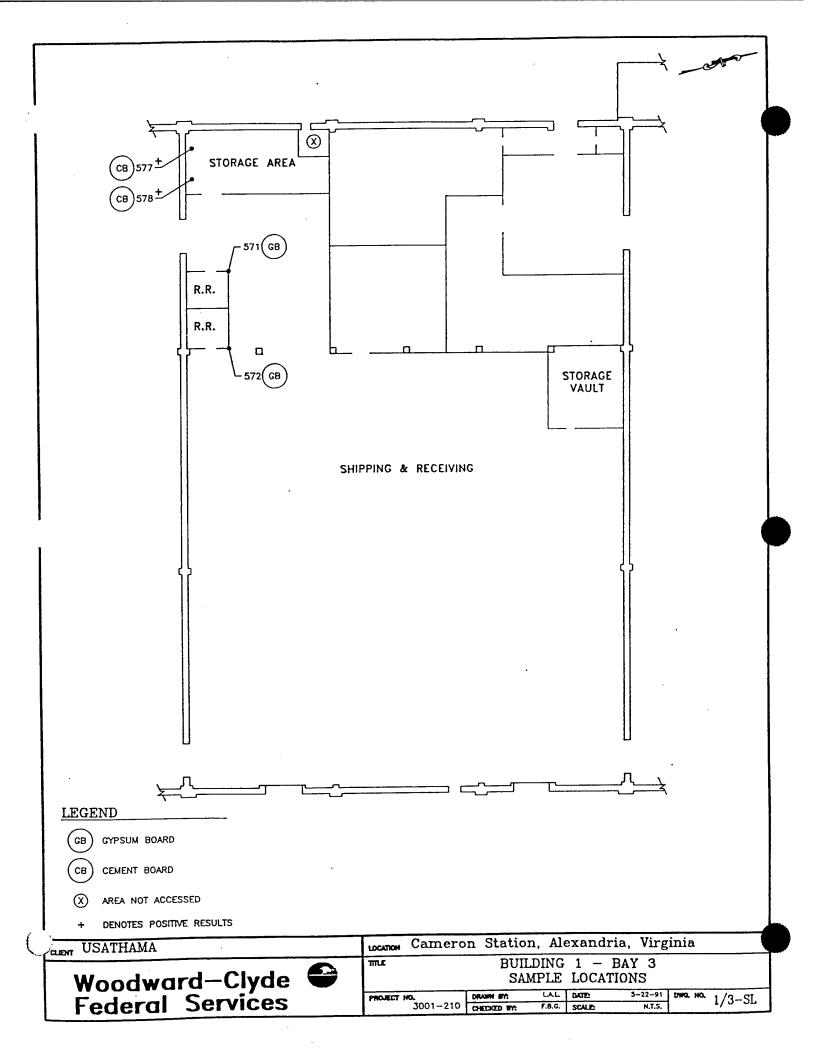


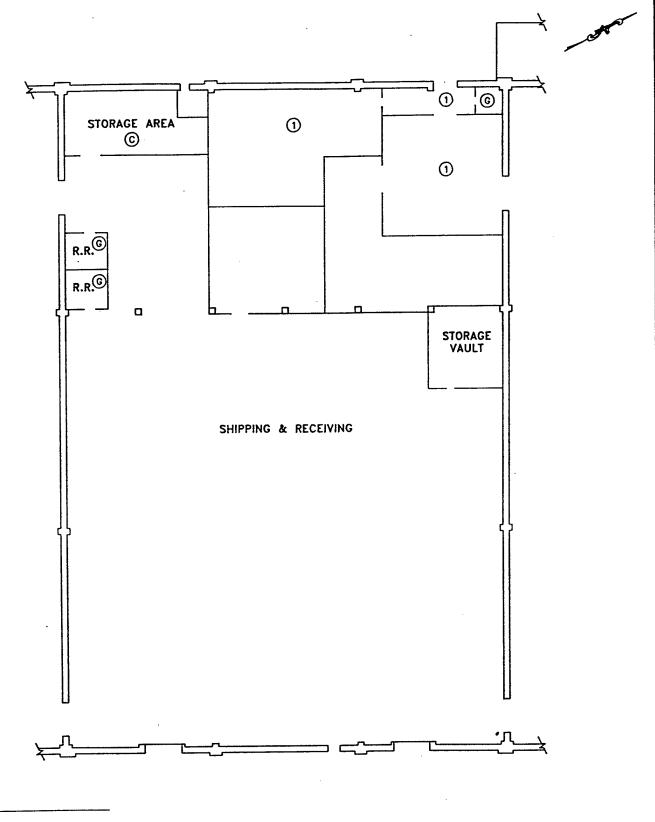
TITLE

LOCATION Cameron Station,	Alexandria,	Virginia
---------------------------	-------------	----------

BUILDING 1 - BAY 2 FLOOR TILE LOCATIONS

					,	
PROJECT NO.	DRAWN ETC	LAL	DATE:	5-22-91	DWG. NO.4 /0 T	W)
3001-210	CHECKED FOR	F.B.G.			1/2-5	7
3001-210	CHECKED BY:	F.B.G.	SCALE	N.T.S.	1 1/	~ -





LEGEND

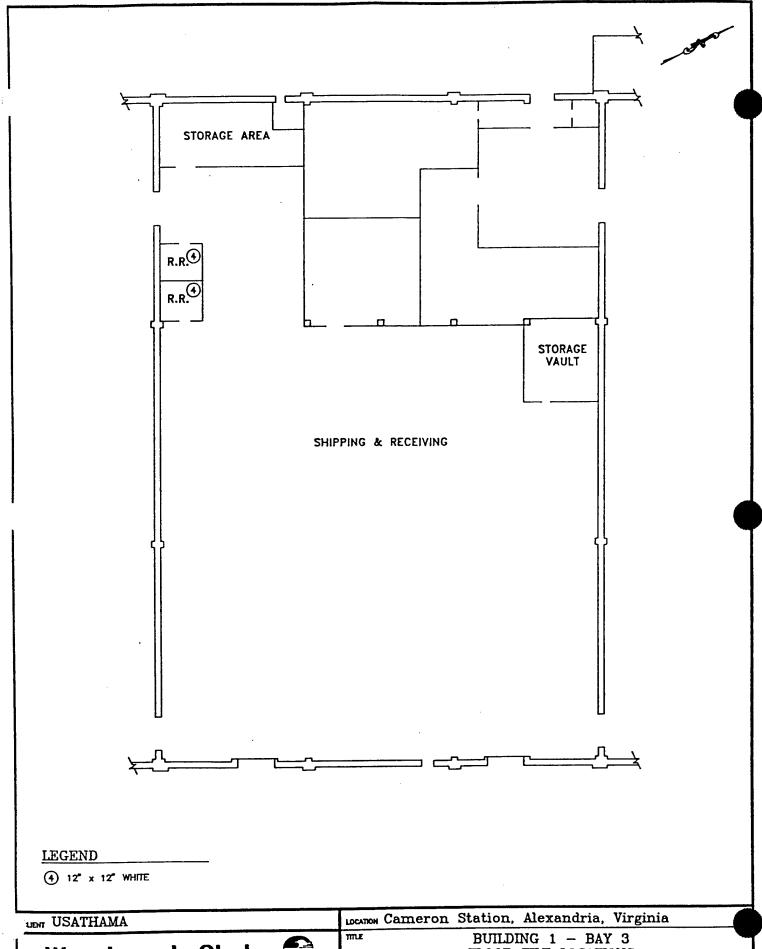
- 1 2' x 4' FISSURED TILE
- G GYPSUM BOARD
- (C) CEMENTITIOUS BOARD

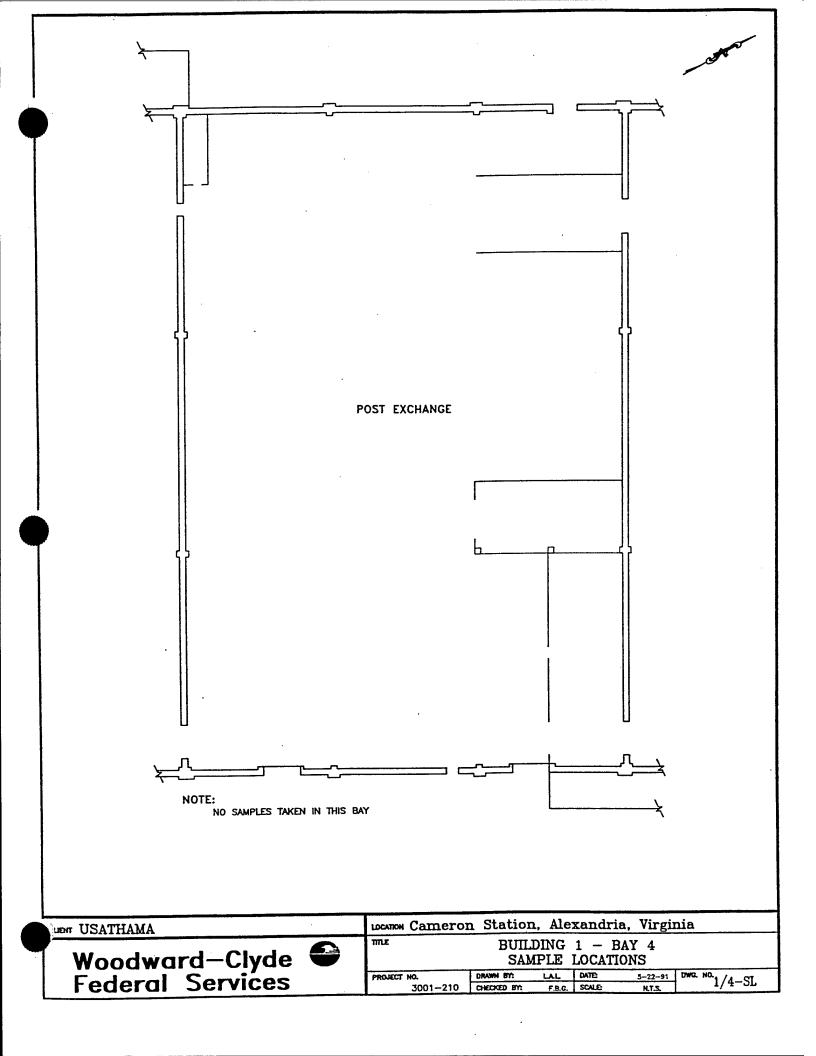
CUENT USATHAMA

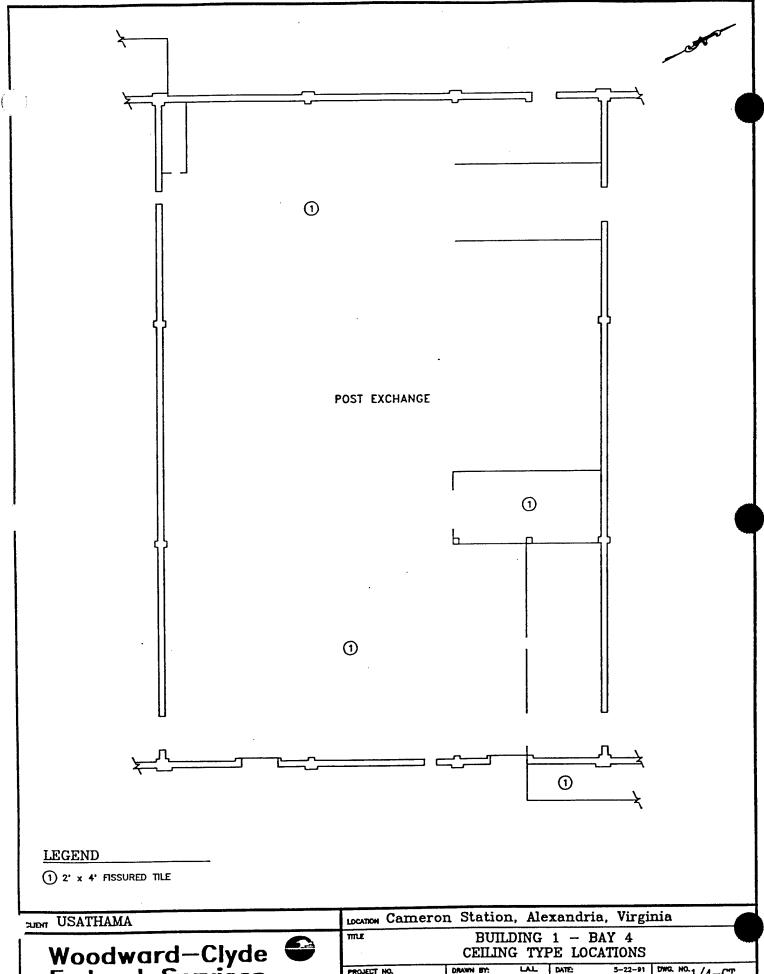
Woodward-Clyde Federal Services



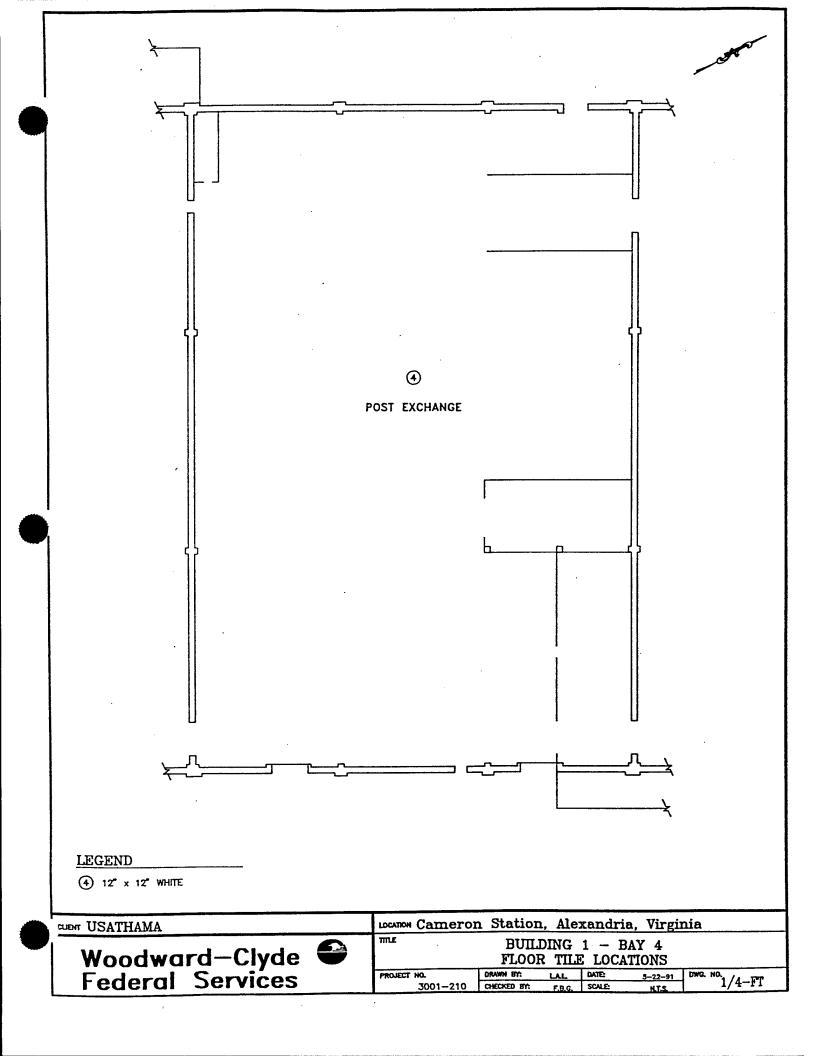
LOCATION Camero	n Station	ı, Ale	xandria	, Virgi	nia
TILE	BUIL	DING	1 - BA	Y 3	
	CEILIN	G TYI	PE LOCA	TIONS	
PROJECT NO.	DRAWN BY:	LAL	DATE:	5-22-91	DWG. NO. 1/3-CT
7001 210	CHECKED BY		SCALE:		1/3-61

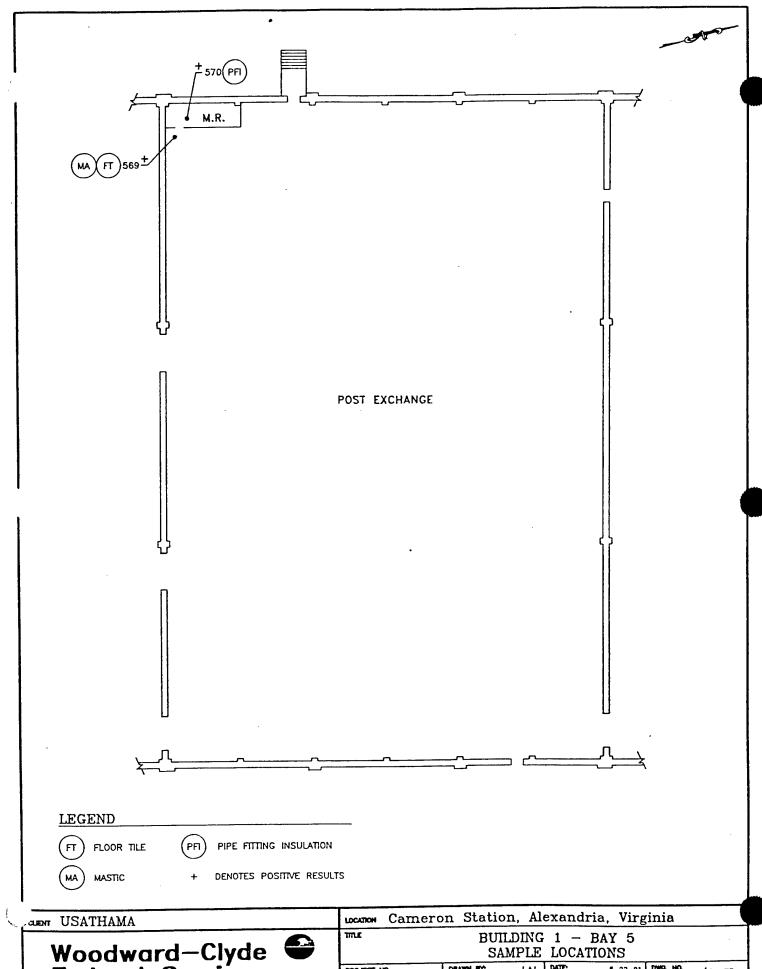




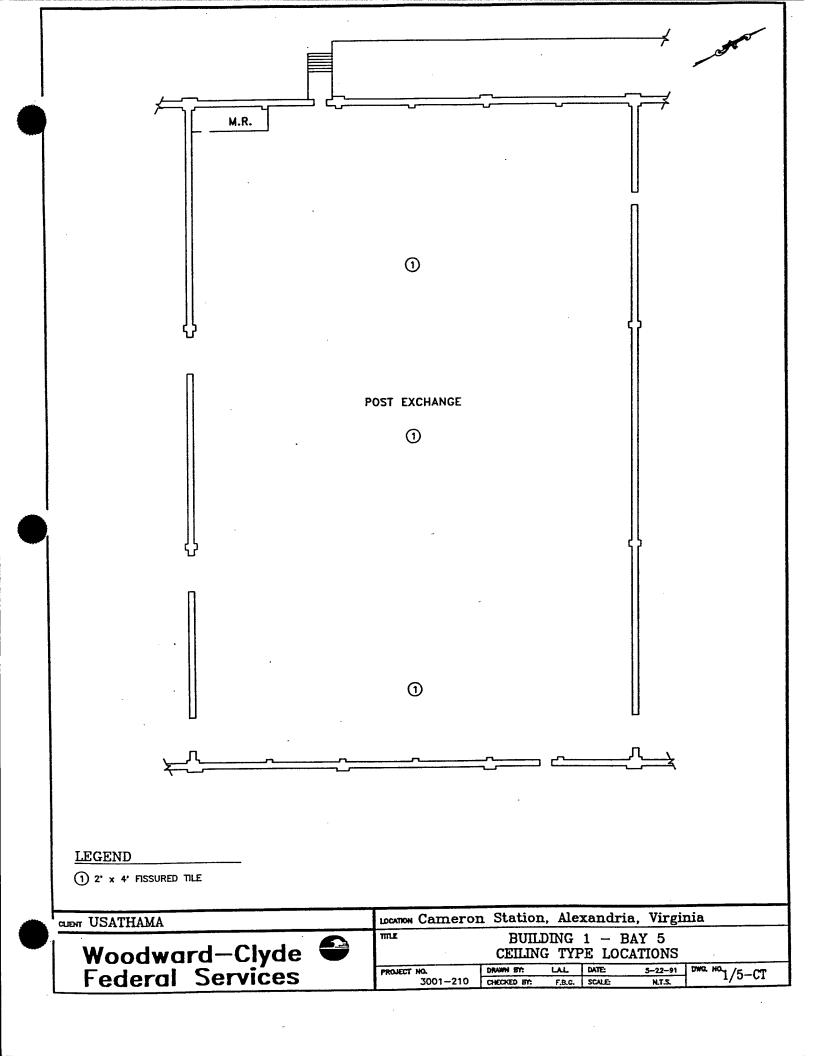


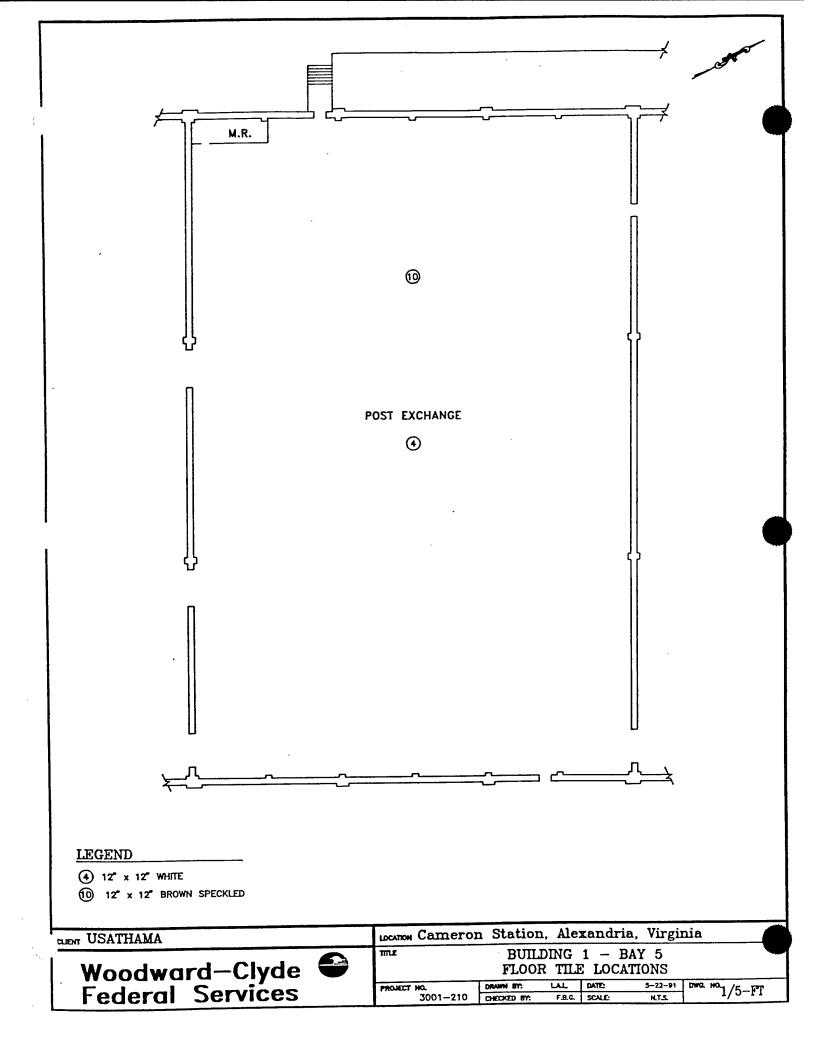
Woodward-Clyde Federal Services 5-22-91 DWG. NO.1/4-CT PROJECT NO. 3001-210 LAL DATE: DRAWN BY: CHECKED BY: F.B.G. SCALE:

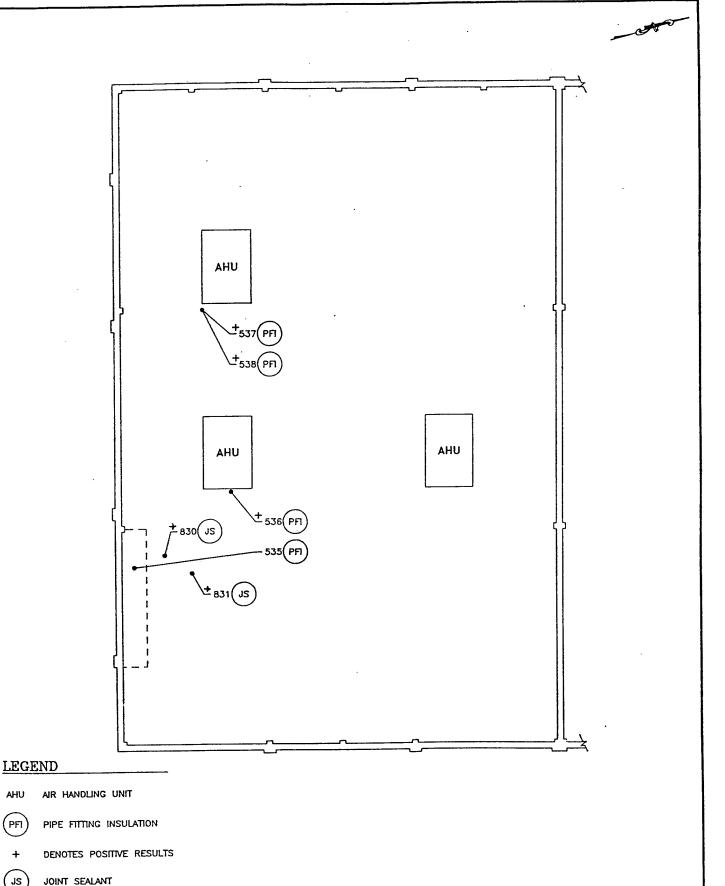




Woodward-Clyde Federal Services LAL DATE DRAWN BY PROJECT NO. F.B.C. SCALE 3001-210 CHECKED BY:





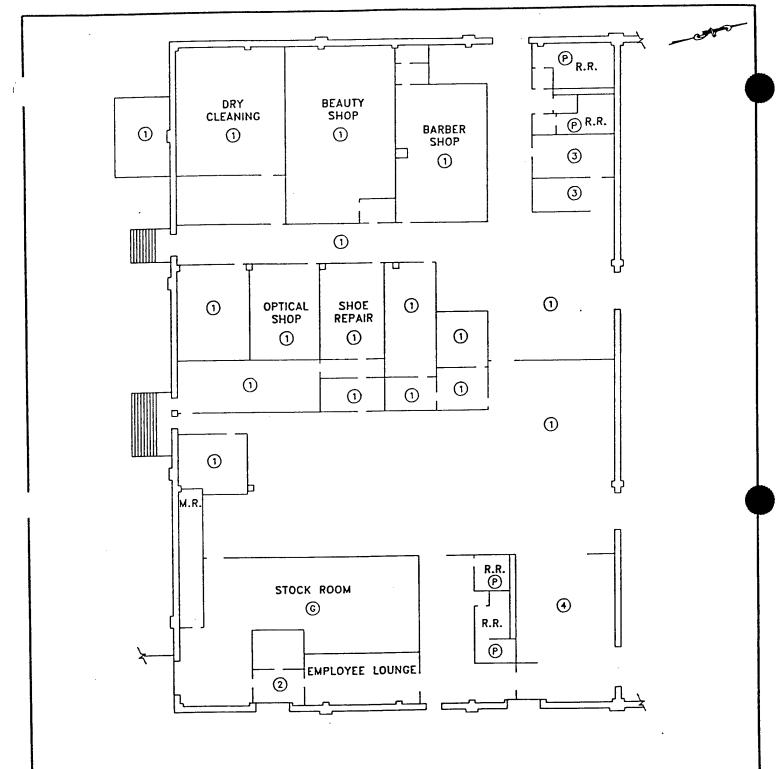


CLEMT USATHAMA

Woodward-Clyde Federal Services LOCATION Cameron Station, Alexandria, Virginia
TIME BUILDING 1 - BAY 6 ATTIC

BUILDING 1 - BAY 6 ATTIC SAMPLE LOCATIONS

PROJECT NO. 3001-210 DRAWN BY: LAL DATE: 5-22-91 DWG, NO. 1/6A-SL



LEGEND

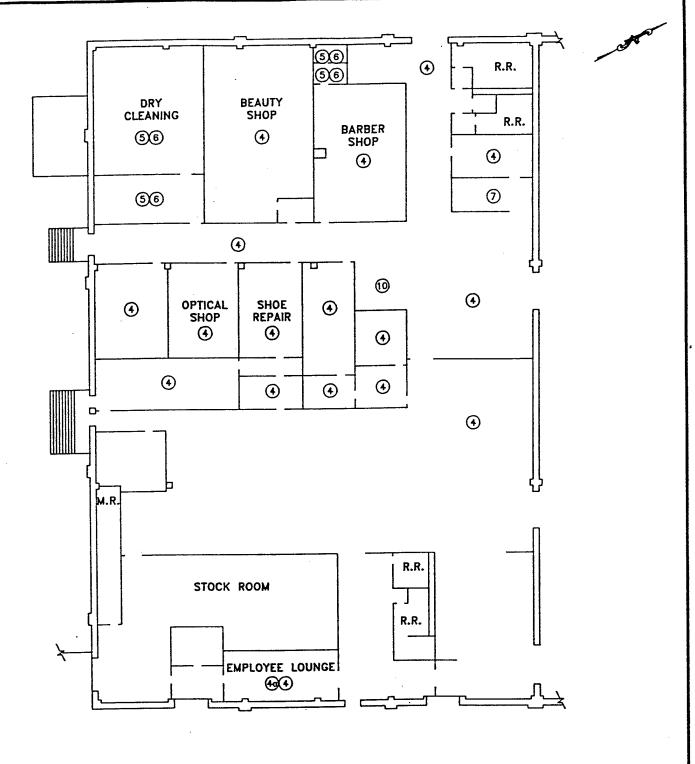
- 1 2' x 4' FISSURED TILE
- 2 12" x 12" RANDOM HOLE TILE
- 3 2' x 4' SMOOTH TILE
- 4 2' x 2' ROUGH TILE
- G GYPSUM BOARD
- P PLASTER

CLENT USATHAMA

Woodward-Clyde Federal Services



LOCATION	Cameron	Station	, Ale	exandria,	virg	inia	
TITLE		BUILI	DING	1 - BAY	6		
		CEILING	TY	PE LOCATI	ONS	}	
PROJECT NO	. 0	WANT BY:	LAL	DATE: 5-	22-91	DWG. NO.	1/6-CT
	3001-210	HECKED BY:	F.B.G.	SCALE	NLT.S.		1/0-01



LEGEND

- 4 12" x 12" WHITE STREAKED
- (4a) 12" x 12" WHITE SPECKLED
- (5) 9" x 9" GRAY
- (e) a, x a, MHLLE
- 7) 12" x 12" WHITE & BROWN MARBLED
- 10 12" x 12" BROWN SPECKLED

Woodward-Clyde Federal Services LIDCATION Cameron Station, Alexandria, Virginia BUILDING 1 - BAY 6 FLOOR TILE LOCATIONS PROJECT NO. DRAWN ST: LAL DATE: 5-22-91 DWG. NO. 1/6-FT

APPENDIX 1-D WALKTHROUGH SURVEY DATA SHEETS

٢_

No:

4110 0 Choudes 11 mas 11 C 11 - 11 - 1

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

ıilding #/			N/4		Inspector/Date: //8/9/	191 . Evalor	Bann
	ID ##	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone			•				
							-
Other							
Type of hearlotton.							

Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

M . . 1 . 10 17

3 of 4 eet

HVAC

Cameron Statio

Inspector/Date: Building

Building /								
	Location	Insulated	Type of	Sample	Condition	Amount	Quantity SF/I F or	Diam. of
***************************************		z. >-	Insulation*	Z			# Fittings	& moulatin
Duct								
				•				
	-							
Dine								
odt t								
Fiffings	Bay 4,5,6 atte	>	mud	^	9 : 6	028	Ħ	3.6"
	and mech Room							
Safer Cities	Bay 6 athe	\	"	3	Q	9	11	,, 81 -,, 91
								2 'X 3 .
								expension
- 11 char	1200 456			Bours		60		Juss
7011								
*Tvne of Insulation:								

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Cameron Station

Inspector/Date:

		 			- T	 T	- T	T	 T	- T	- T	 T I		-	
/	Quantity	83000	930	475			1020								
te: // 0 / /	Condition G F P	٥	,,	**			0								
Inspector/Date:	Sample Y N	47	÷				• •								
	Location	su down	,,	11			1,								
	Color/Pattern	Junion 1 Cha	" James Int		w/sm holo		nough in	small holes							
Building /	Material*	9 7 6	,				2 x x 2	1							

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Woodward-Clyde Federal Services



November 19, 1990

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Inspector/Date:

Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
"			>	9	\$ 000
12 × 12	Sulv	Daniel Con	1/	"	8 000
12 × 12	black	//	i i		260
6 x 6	wring		:	,,	50,000
2/*,, 2/	while		=	11	0801
9" ×9"	gan	",	•	"	0801
"6 × "6	and	- 17		"	220
,,2/ × ,, 2/	artel & hown				
	modeled			"	(10)
11 65 5 11 61	unng	,	`		2220
0,8 6.7	Mr ham	"	,	"	201
/ / / / / / / / / / / / / / / / / / /	S. 20. 12. 18.	"	"	11	65-00
2/x 2/	Spublin				
	1 5 1. (milde)	shopping in 477 wall	7	*	1021
12" X /2"	Chuch in fraction	Ivan se			

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Woodward-Clyde Federal Services

November 19, 1990

4 of 4

हूं इं

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Cameron Station

			Bssund	;	:	`						
	Quantity	300	<50	+50	< 50	10	260	100/				
ıte:	Condition G F P	0	• •	"	7.1	"	"	"				
Inspector/Date:	Sample. Y N	\	7	7	>	×	\	X				
	Location	Bay 1 commet 5 rm	1 masolun "	1 11	11	11 11	Bari Mmi RR	" Enviored				
	Color/Pattern	hum	14 Casimi	dr cours	L bex	mony A	0000	The wind	10			
Suilding	Material*	/2 " 2/	, ,		(3 6 7)		2 7 2 1,	" (1, " 6, " 6, " 6, " 6, " 6, " 6, " 6, "	Į.			

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile

Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Walls Gypboard/Drywall Plaster Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

	Quantity	80,000		1000		202						
ıte:	Condition G F P	ی		5		ح						
Inspector/Date:	Sample Y N	>		>		X						
	Location	Throw hour	P	Bus Lacores - Bay6		Bay 3 - ceiling	1 hotel thangous					
	Color/Pattern					1		2000				
†	Suliding / Material*	J. Cory	4 ypsum Course	1 10	//a) vc	1 6.0						

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Woodward-Clyde Federal Services

APPENDIX 1-E LABORATORY CERTIFICATE OF ANALYSIS

on editor (secret) and tisclear (which is Accredited Laboratory)



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 1
Job Site : Cameron Station
Job Number: 3001

Date Sampled: 02/20/91
Date Analyzed: 03/06/91

Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED 日〇日 SUMMARY

COMMENT														
ANALYST ID**	AS	S S	AS	AS.	88	S 8	A.S	AS	AS	AS	AS	AS	AS	AS
PARTICULATE	65-70	55-65	45-55	20-60	100	30-40	25-35	30-40	25~35	100	25-35	10-15	100	100
AL &/	!	1 1	;	!	:	1	1	! ! !	!	1		!	1	
s materi organic Fibers	1	;	1	1	1	30-35	30-35	30-35	15-20		15-20	85-90	1	₽
OTHER FIBROUS MATERLI MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	1	1	!	1	7	1	1	1	1		1			!
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	30-35	30-35	30-35	35-40	1	30-35	35-40	30-35	50-55	1	50-55	1	1	1
/	-	1	1 1	1	1	1	1	1 1	-	1	i i i	1	1	
TREMO- ACTIN- ANTHOP-	1	1	1	1	1	1	!	1	1	1		1		1
OS & IREMO-		!	!	1 1 2	1	1	!	1	!		1	1		1
ASBESTC CROCIDO- LITE	1	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	1	1	1	1	1		1	1 1 1	1	1	1	1
AMOSITE	1		1		1	1	1	1	1	1	1	1	;	1
CHRYSO- TILE	1	05-10	15-20	05-10	1	1	1		1	1	1	!	;	1
ASBESTOS PRESENT*	z	£,	p.	Д	z	z	z	z	z	z	z	z	z	×
SAMPLE ID	535	536	537	538	539	540	541	542	543	544	545	546	547	548

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

31 MILLS [#254] and GVI MP [#1143]. Accredited Laboratory

Woodward-Clyde Federal Services 1 Church St. Suite 404

Rockville, MD 20850 Attn: Sally Gaurdia

Job Site : Cameron Station

Bldg #

Job Number: 3001

CERTIFICATE OF ANALYSIS

: 02/20/91 : 03/06/91 Date Analyzed Date Sampled

Person Submitting: David Barnes

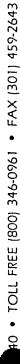
MICROSCOPY LIGHT POLARIZED **H**0 SUMMARY

-/ ANALYST COMMENT PARTICULATE ID** COMMENT	30-95 AS	100 AS	. 25-35 AS	100 AS	. 65-70 AS				75-80 AS	85-90 AS	90-95 AS	. 100 AS	. 100 AS	
IAL c OTHER						1			!	!	1	1		
S MATER: ORGANIC	05-10	;	25-30	1	2	1	90-95	90-95	20-25	10-15	05-10	1		
CTHER FIBROUS MATERL MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	1	!		!	1					ļ				
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	1 1	1	40-45	-	30-35	30-35	!	!	!	!	\$ \$ \$ \$!		
CHRYSO- CROCIDO- TREMO- ACTIN- ANTHOP-	;	:	1	•	1	;	•	1	:	1	1	1		
TREMO- ACTIN- ANTEOP- LITE OLITE EYLLITE	ļ				-		1	1	1	1	!	1		
JS . TREMO- LITE	1				}				!			!		
- ASBESTY CROCIDO- LITE		!		1 1 1		!			!	!		;		
AMOSITE		1	1	1		;	1	!	;					
CHRYSO-	!				!	!	1	1	!	1	!	!		
ASBESTOS PRESENT*	z	z	z	z	×	z	z	z	z	z	z	z	z	
SAMPLE ID	549	550	551	552	553	554	555	556	558	559	560	561	299	-

** ANALYST ID CODE (SEE LAST PAGE) - ASBESTOS NOT OBSERVED * P = ASBESTOS PRESENT COMMENTS:

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on a read (e. 94) and taxtoot (#1143) Mededited Laboratory

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

: 02/20/91 Date Sampled

Person Submitting: David Barnes : 03/06/91 Date Analyzed Job Site : Cameron Station ..

MICROSCOPY LIGHT POLARIZED <u>Б</u> SUMMARY

Job Number: 3001

Bldg #

COMMENT													٠	
ANALYST ID**	88	AS	SV.	SK.	AS	AS	SS	SQ.	N S	AS	AS	AS	AS	A.S
PARTICULATE	100	85-94	85-90	80-90	85-94	95-99	10-15	70-75	80-85	95-99	90-95	10-79	95-99	65-70
AL */	!	1	10-15	05-10	05-10	1	!	1	1	1	1	1	!	!
S MATERI. ORGANIC FIBERS	₽	05-10	1	1		₽	1	25-30	15-20	7	7	20-25	7	!
CTHER FIBROUS MATERI. MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	1	-		1	1	1	1	1	₽	1	1	01-05		1
/ OTHER PIBROUS MATERIAL \$/ MINERAL PIBROUS ORGANIC WOOL GLASS PIBERS OTHER	ļ	1	!	1	1	1	1	1	1	1	1	!	1	!
HERYSO- CROCIDO- TREMO- ACTIN- ANTHOP-	1	1	1	1		-	1	1	1		1 1 1		1 1	ļ
IREMO- ACTIN- ANTHOP- LITE OLITE HYLLITE	;	1	1			!	1	!	1		!	1	1	!
OS \$ ~~ . TREMO- LITE	İ		!	!	1	1		1	!	!		!		}
ASBEST CROCIDO- LITE	1	1	1	!			;	1 1	İ	:		1		
AMOSITE		1	1	1	!		1				1			1
CHRYSO- TILE A		01-05	₹	05-10	01-05	01-05	85-90	1	1	01-05	05-10	1	01-05	30-35
ASBESTOS PRESENT*	z	ц	p,	Д	М	Д	p.	×	z	ρι	ρι	z	Ωŧ	ρι

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

* ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

ners partial and TV Lore (#1143) Accredited Laboratory

Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

: 02/20/91 : 03/06/91 Date Analyzed Date Sampled

Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED (H) SUMMARY

Job Site : Cameron Station

Bldg #

Job Number: 3001

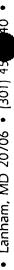
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This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these "All rights reserved. AMA Analytical Services, Inc." Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





to the expectation of the form of the ordered field Laboratory **AMA** Analytical Services, Inc.



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001 .. Bldg #

: 02/20/91 Date Sampled

Person Submitting: David Barnes : 03/06/91 Date Analyzed

MICROSCOPY LIGHT POLARIZED 日日 SUMMARY

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** ANALYST ID CODE (SEE SIGNATURE)

N = ASBESTOS NOT OBSERVED

COMMENTS: * P * ASBESTOS PRESENT

5 PAGE(8) LAST PAGE OF

Bulk Insulation Samples. Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in

Andreas Saldivar

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.



May 15, 1991

Woodward-Clyde Federal Services One Chruch Street, Suite 404 Rockville, MD 20850

RE:

TEM Bulk Analysis Cameron Station

JOB SITE:

Bldg. 1

JOB LOCATION:

Cameron Station

PROJECT NUMBER:

3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.		DOLOMITE/ CALCITE	NON FIBROUS MINERALS
564	<1%	21%	62%	17%

Woodward-Clyde Federal Services May 15, 1991 Page 2 of 3

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically. A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios \geq 5:1 and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

<u>Results</u>

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

Woodward-Clyde Federal Services May 15, 1991 Page 3 of 3

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely, AMA ANALYTICAL SERVICES, INC.

Tuis H. Bustillos

Electron Microscopist

Robert M. Powell Laboratory Director

LHB/kec

APPENDIX 1-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde Fe ral Services

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VCFS Project No

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

coc By: £1819

Field Office: Woodward-Cly Jeral Services
Building 17
Door Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Woodward-Clyde Tral Services CHAIN OF CUSTODY RECONSTITUTES

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Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Woodward-Clyde Faral Services

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CHAIN OF CUSTODY RECON. - USATHAMA SAMPLES

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Cameron Stat. Alexandria, VA 22304 703 617-7373 Field Office: Woodward-Ch Bullding 17 Door 2

ideral Services

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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3001 WCFS Project

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eral Services Woodward-Clyde (

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 15 19

** Services Fleid Office: Woodward, ederal Building 2 Door 2 Cameron Stau-11 Alexandria, VA 22304 703 817-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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5 Project Scientist

3001 WCFS Projec

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Jeral Services Woodward-Clyde

CHAIN OF CUSTODY RECUAD - USATHAMA SAMPLES

coc By: 1819

Field Office: Woodward : Federal Services
Building Door 2
Cameron 2
Cameron Alexandrio, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES COC By: 6 18 19

& Federal Services Field Office: Woodwa e Federal Building 1 Door 2 Cameron Station Alexandria, VA 22304 703 617—7373 Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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3001 WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde leral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 7= 1810

Federal Services

Field Office: Woodward—(Federal Building 17 Door 2 Cameron Station ... Alexandrio, VA 22304 ... 703 617-7373

Admin. Office: Woodward-Ciyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde ral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES coc By: 6 19 19

ederal Services

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Field Office: Woodward-Building 17
Building 17
Boor 2
Cameron Station
Alexandria, VA 22304
703 617-7373

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Field Office: Woodward—(Federal Services Building 17 Door 2 Cameron Station Alexandria, VA 22304 703 617—7373

Admin. Office:

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES ral Services Woodward-Clyde 1

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Field Office:

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Woodward-Building 17 Door 2 Cameron Station Alexandria, VA 22304 703 617-7373

Admin. Office:

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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BUILDING 2

2.1 DESCRIPTION

Building 2 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar felt and gravel over wood. It is divided into six bays by masonry firewalls. Originally built as a warehouse, it has been partially converted to office and retail space with separate overhead attic areas. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and regular and fire code gypsum board. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Current occupants are the Commissary, Soldiers Magazine, MDW Communications and Electronics, Field Maintenance Shop, U.S. Army Aeronautical Services Agency and the Credit Union.

2.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 2-A through 2-F. A summary of this data is presented below.

2.2.1 Suspect Friable ACM

Four homogeneous areas of suspect friable ACM were identified and thirteen bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following three materials:

- Trowelled-on duct insulation
- Pipe fitting insulation
- Corrugated paper pipe insulation

These three materials, along with the tank insulation located in the attic of Bay 2 which is assumed to be friable ACM, were found in five functional spaces and were assessed as follows:

- Pipe fitting insulation and corrugated paper pipe insulation in Bay 1 boiler room.
 Assessment of these materials indicates a damage factor of 10 and an exposure factor of 16. According to the GAHA Index, these materials rank as Priority C.
- Corrugated paper pipe insulation in Bay 1 attic. Assessment of this material indicates
 a damage factor of 5 and an exposure factor of 18. According to the GAHA Index,
 this material ranks as Priority B.
- Tank insulation, trowelled-on duct insulation, pipe fitting insulation, and corrugated paper pipe insulation in Bay 2 attic. Assessment of these materials indicates a damage factor of 12 and an exposure factor of 20. According to the GAHA Index, these materials rank as Priority B.
- Pipe fitting insulation on Bay 4 mechanical room. Assessment of this material indicates a damage factor of 5 and an exposure factor of 16. According to the GAHA Index this material ranks as Priority C.
- Pipe fitting insulation and corrugated paper pipe insulation in Bay 6 attic. Assessment
 of these materials indicates a damage factor of 5 and an exposure factor of 16.
 According to the GAHA Index, these materials rank as Priority C.

2.2.2 Suspect Nonfriable ACM

Fourteen homogeneous areas of suspect nonfriable ACM were identified and 48 bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following seven materials.

- FT 1 12" x 12" white floor tile and mastic
- FT 3 9" x 9" gray floor tile and mastic
- FT 4 9" x 9" brown floor tile and mastic
- FT 5 9" x 9" beige floor tile and mastic
- FT 6 12" x 12" brown floor tile and mastic

- FT 7 9" x 9" green floor tile and mastic
- FT 8 white sheet flooring and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

2.2.3 Material Assumed to Contain Asbestos

The following three homogeneous areas are assumed to be ACM:

- Tar and felt roofing material (nonfriable)
- Vibration cloth (nonfriable)
- Tank insulation. This material is assumed to contain friable asbestos; the tank, which
 is anchored to the attic ceiling in Bay 2, was inaccessible for sampling.

No assessment of the two nonfriable materials was performed. However, as ACM they should be included in an O&M Program. Assessment of the friable tank insulation is provided in Section 2.2.1.

Note: Two bulk samples were taken from the roofing material and analyzed. One of the samples detected no ACM and the other detected less than 1% ACM. These two samples are not of a sufficient quantity to state that the roof is not asbestos containing. The roof is therefore still assumed to contain ACM.

2.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection the following materials originally noted in the walkthrough survey as suspect ACM were examined more closely and identified as nonsuspect:

- CT 1 2' x 4' fiberglass ceiling tile; and
- CT 4 12" x 12" fiberglass ceiling tile.

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

2.4 AREAS NOT ACCESSED

All main level areas in Building 2 were accessed. Access to the overhead spaces in Bay 1 and Bay 2 was limited to the areas that could be reached through the boiler room and stairs.

2.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
2		5050 SF TSI 100 MF	575 MF 200 LF TSI

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

2.6 REPORT APPENDICES

The following appendices apply to this building:

Appendix 2-A ACM Survey Results

Appendix 2-B Assessments/Recommendations for Friable ACM

Appendix 2-C Building Drawings

Appendix 2-D Walkthrough Survey Data Sheets

Appendix 2-E Laboratory Certificate of Analysis

Appendix 2-F Sample Chain-of-Custody Forms

APPENDIX 2-A ACM SURVEY RESULTS

ACM Survey Results for Building 2

	Comments	Sample 755 is a QC for 754			Tank, which is anchored to attic ceiling, was inaccessible for sampling		
	Sample Results (% and type of asbestos)	< 1% None detected None detected	Assume ACM		Assume ACM	None detected None detected None detected	20-25% chrysotile 35-40% chrysotile 20-25% chrysotile
	Sample #	753 754 755	Assume ACM		Assume ACM	430 431 432	439 440 441
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	Ω.	Ä.		r.	Ω Fr	R.
Quantity	Estimated	130000	35		50	200	2000
	Condition (Good, Fair, or Poor)	poog	Good	de de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	900g	Fair	Fair .
	Friability (Non, Low, Mod. or High)	Non	Non		Unknown, assume low	Low	Mod.
	Location (where material is found)	Roof	Bay 3, AHU, lunch room	Bay 2, AHU, attic	Bay 2, attic, expansion tank	Bay 1, boiler room	Bay 2, attic, duct work
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and Felt	Vibration cloth		Tank insulation, unknown type	Trowelled-on boiler insulation	Trowelled-on duct insulation
Material	Category (surfacing TSI or misc.)	Misc.	Misc.		Tsı	131	TSI
	Homogen- eous Sample Area #	-	7		ю	4	w

Woodward-Clyde Federal Services January 8, 1992

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ACM Survey Results tc. Building 2 (continued)

	Comments	3" - 6" fittings with insulation	Sample 416 is a QC for sample 415	CT 2 2' x 4' white w/12" x 12" rectangular pattern Sample 457 is a QC for sample 456.	CT 3 2' x 4' white w/fissures
	Sample Results (% and type of asbestos)	20-25% chrysotile 15-20% chrysotile 20-25% chrysotile	20-25% chrysotile 15-20% chrysotile 20-25% chrysotile 20-25% chrysotile	None detected None detected None detected	None detected None detected
	Sample #	438 442 443	415 416 417 81	456 457 458	419 420
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	# of fittings	<u>"</u>	r.	Ω T
Quantity	Estimated Amount	75	009	450	19500
	Condition (Good, Fair, or Pobr)	Fair	poog	poog	Good
	Friability (Non, Low, Mod. or High)	Mod.	Mod,	Non .	Non
	Location (where material is found)	Bay 1, boiler room Bay 2, attic Bay 4, mech. room Bay 6, attic	Bay 1, boiler room on lst floor; attic along north wall Bay 2, attic Bay 6, attic	See Drawing 2/2-CT	See Drawing 2/3-CT 2/4-CT 2/6-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Pipe fitting insulation	Corrugated paper pipe insulation	Ceiling tile	Ceiling tile
Material	Category (surfacing TSI or misc.)	TSI.	IST .	Misc.	Misc.
	Homogen- eous Sample Area	ω	r	ω	ത

ACM Survey Results to. Building 2 (continued)

	Comments	CT 5 12" × 12" white w/fissures	FT 1 12" x 12" white floor tile	FT 2 12" × 12" orange floor tile	FT 3 9" x 9" gray floor tile	FT 4 9" x 9" brown floor tile Approximately 5,000 SF badly damaged
	Sample Results (% and type of asbestos)	None detected None detected	None detected 1-5% chrysotile	None detected None detected None Detected ²	1-5% chrysotile 1-5% chrysotile	5-10% chrysotile 1-5% chrysotile 'using PLM
	Sample #	460 461	433 445	436 437	434 435	422 423
tity	Unit of Measure- ment (SF, LF or # of fittings)	R.	r L	π.	R.	г.
Quantity	Estimated Amount	1100	34000	3050	1650	11200
	Condition (Good, Fair, or Poor)	рооб		Good	Good	Poor
	Friability (Non, Low, Mod. or High)	Non	N C O	Non	o N	с о 2
	Location (where material is found)	See Drawing 2/2-CT	See Drawing 2/1-FT 2/2-FT 2/3-FT 2/6-FT	See Drawing 2/1-FT 2/2-FT 2/3-FT	See Drawing 2/1-FT 2/2-FT	See Drawing 2/3-FT 2/6-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Floor tile and mastic	Floor tile and mastic	Floor tile and mastic	Floor tile and mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	. 01	F	12	13	4
<u> </u>	1					



ACM Survey Results for Building 2 (continued,

	Comments	FT 5 9" x 9" beige floor tile Approximately 5,000 SF badly damaged	FT 6 12" x 12" brown floor tile	FT 7 9" x 9" green floor tile	FT 8 white sheet flooring	FT 9 12" x 12" light brown floor tile
	Sample Results (% and type of asbestos)	1-5% chrysotile 1-5% chrysotile	1-5% chrysotile 5-10% chrysotile	1-5% chrysotile 1-5% chrysotile	30-35% chrysotile 30-35% chrysotile	None detected None detected
	Sample #	448 449	453 454	427 428	462 463	421 424
tity	Unit of Measure- ment (SF, LF or # of fittings)	R.	R.	R R	R T	π π
Quantity	Estimated Amount	7300	150	750	800	4600
	Condition (Good, Fair, or Poor)	Poor	poog	Good	Good	Poor
	Friability (Non, Low, Mod. or High)	Non	Non	Non	Non .	Non
	Location (where material is found)	See Drawing 2/3-FT 2/4-FT 2/5-FT	See Drawing 2/3-FT	See Drawing 2/2-FT 2/3-FT 2/4-FT	See Drawing 2/2-FT	See Drawing 2/6-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile and mastic	Floor tile and mastic	Floor tile and mastic	Sheet flooring and mastic	Floor tile and mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	<u>r</u>	16	17	18	6

ACM Survey Results tc. Building 2 (continued)

	1		
	Comments	Sample 425 is a QC for Sample 425	
	Sample Results (% and type of asbestos)	None detected None detected None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected
	Sample #	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	450 451 452 464 465
tity	Unit of Measure- ment (SF, LF or # of fittings)	ш. 	T.
Quantity	Estimated Amount	00006	00008 >
	Condition (Good, Fair, or Poor)	poog	D000
	Friability (Non, Low, Mod. or High)	Non	c N
	Location (where material is found)	Walls: throughout building Ceilings: See Drawing 2/1-CT 2/2-CT 2/3-CT 2/4-CT 2/5-CT	Hallways and entry ways throughout building
Material Description	Type (e.g., pipe insulation; floor tile)	Regular gypsum board	Fire code gypsum board
Material	Category (surfacing TSI or misc.)	Surfacing	Surfacing
	Homogen- eous Sample Area	20	21



APPENDIX 2-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 2

		Material	Material Description				
Functional Space	Homogen- eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
2-1 Bay 1, boiler room	6, 7	TSI	Pipe fitting insulation; corrugated paper pipe insulation	10	16	U	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-2 Bay 1, attic	7	īS	Corrugated paper pipe insulation	ហ	8	œ	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-3 Bay 2, attic	3, 5, 6, 7	IST.	Tank insulation; trowelledon duct insulation; pipe fitting insulation; corrugated paper pipe insulation	12	50	ω	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
2-4 Bay 4, mechanical room	φ	TST	Pipe fitting insulation	ហ	16	U	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
2-5 Bay 6, attic	6, 7	TSI	Pipe fitting insulation; corrugated paper pipe insulation	ம	6	U	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.



Friable Asbestos Assessment Checklist

Damage/Risk
: :
Part

0 None 1 Minimal; ,¥وط/ 4 Moderate; • Visible evidence of physical damage: 5 High;

3 Yes; (0) No

Water damage:

- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
- 0 >5 ft & no routine maintenance 3 <1 ft. or ceiling panel contaminated; 2 $1 \le ft < 5$; $1 \ge 5$ ft; A. Sprayed- or trowelled-on:
 - B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required;

0 No routine maintenance

- 4 Ceilings/walls 0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; • Type of material (If area contains several friable materials, score the one with the greatest quantity).
- Potential for Contact based on material proximity to area occupants:
- < 10 ft: ₹
- 8 High; (5) Medium; 2 Low
- 5 High; 3 Medium; 0 Low ≥ 10 ft:

ю

- Asbestos content: Use percentage for material with highest probability for becoming airborne:
- NO HAZARD Samples contain no asbestos > 50%; ĸ (1) 1< % \leq 30; 3 30 < % \leq 50; 143
 - 438 44E Damage/Risk Total Sample Numbers:

7	Inspector/Date Brown / George
Sameron Station Building 2	* /
, 7	Material Type(s) Frifile faller 122 1200 (1974
lomogeneous Sample Area #(s) (c) /	The Armost In Mount
2-1 Ban / Briles Com	Comp Carried II
functional space	
Part 2: Exposure	
• Friability: 6 High; (3) Moderate; 1 Low	
100 / # 2 / 1000	o. 3 > 1000 ft.
• Amount of Visible Friable Material: $0 < 10$ ft*; $1 \cdot 10 \le \text{ tt}^* < 100$; $(2 \cdot 100 \le \text{ tt}) < 100 \le \text{ tt}^*$	
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)	

• Air Movement: Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area 5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (6) None of the above • Ventilation: (Mark all categories that apply; maximum of 7 points.)

(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth

- <u>Activity</u> (Refers to forces such as vibration, water or steam acting on material.)
 - ე 0 5 High (constant vibration); (2/ Medium (occasional vibration);
- 0-4 Unique situation (e.g., dirt floor) 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface;

• Floor:

- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None A. Sprayed- or trowelled-on ceiling or walls
- $(\sqrt{y} \le 25\%; 25 < \% \le 50; 350 < \% \le 75; 475 < \% \le 100$ B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
- 5 > 1001 or medical/youth centers/residential 4 501 ≤ pop ≤ 1000; • Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ Exposure Total

Inspector/Date Barnes (Obland 18 113 11)	Material Type(s) (Analgatek Fuy		
Cameron Station Building Z	Homogeneous Sample Area #(s)	Functional Space 2-2 (20) (affice	\$

Part 1: Damage/KISK

1 Minimal; 5 High; on O Visible evidence of physical damage:

3 Yes;

Water damage:

2 Low; 4 Moderate; • Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

0 >5 ft & no routine maintenance <1 ft. or ceiling panel contaminated; $2 \le 1 \le ft < 5$; $1 \ge 5$ ft; A. Sprayed- or trowelled-on:

0 No routine maintenance 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; Pipe, boiler or duct insulation:

B.

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

4 Ceilings/walls 0-4 Other friable material; (1) Boiler/pipe; 3 HVAC;

Potential for Contact based on material proximity to area occupants:

5 Medium; (2) Low 8 High;

< 10 ft:

Ą

ä

5 High; 3 Medium; 0 Low > 10 ft: Asbestos content: Use percentage for material with highest probability for becoming airborne:

NO HAZARD Samples contain no asbestos > 50%; S 3 30 < % < 50; ((1)) 1 < % \leq 30;

Sample Numbers:

417

Damage/Risk Total

Sameron Station Building 2 Inspector/Date Barnell Charles Samue (Charles 15/9)
Homogeneous Sample Area #(s)
Functional Snace 2.2 (220) aftic
• Friability: & High; (3) Moderate; 1 Low
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $(1) 10 \le \text{ft}^2 < 100$; $2 100 \le \text{ft}^2 < 1000$; $3 \ge 1000 \text{ ft}^2$
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
(A Rough; 3 Pitted; 2 Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply; maximum of 7 points.)
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (1) None of the above
• <u>Air Movement</u> : 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
 Activity (Refers to forces such as vibration, water or steam acting on material.)
5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
• Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$1 \le 25\%$; $2 \le 5 < \% \le 50$; $3 \le 0 < \% \le 75$; $4 \longrightarrow 75 < \% \le 100$
• Population: $(1) \le 9$ or for corridors; $(2) \le 10 \le 10 \le 10 \le 100$; $(3) \le 100 \le 100 \le 1000 \le 1000$; $(1) \le 9$ or for corridors; $(2) \le 100 \le 1000$; $(3) \le 1000 \le 1000$; $(4) \le 1000$; $(5) \le 1000$ or medical/youth centers/residential
Exposure Total /8 Woodward-Clyde Federal Services

November 19, 1990

Part 1: Damage/Risk

- 4 Moderate; /2 /Low; 1 Minimal; 5 High; Visible evidence of physical damage:
 - ON (0) 3 Yes; Water damage:
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
- B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (A) Yes, routine maintenance required; 0 No routine maintenance 0 > 5 ft & no routine maintenance 3 <1 ft. or ceiling panel contaminated; $2 \le 1 \le ft < 5$; $1 \ge 5$ ft; A. Sprayed- or trowelled-on:
 - Type of material (If area contains several friable materials, score the one with the greatest quantity).
- 4 Ceilings/walls 0-4 Other friable material; ((1) Boiler/pipe; 3 HVAC;
- Potential for Contact based on material proximity to area occupants:
- 8 High; (5) Medium; 2 Low 3 Medium; 0 Low A. < 10 ft:

ä

- Asbestos content: Use percentage for material with highest probability for becoming airborne:
- 1 1< % \leq 30; (3) 30 < % \leq 50; 5 > 50%; NO HAZARD Samples contain no asbestos 200
 - 439 440 Damage/Risk Total Sample Numbers:

Friable Asbestos Assussment Checklist Building 2 Inspect Inspe	(Inspector/Date Barres Guardies 2/15/41	Material Type(s) think man lattery furnelled in client	montaking fight fellows months	Carry axed John
<u> </u>	Friable Asbestos Assussin	Building 2	ea #(s) 3 5, 6, 7	Barr aftic	Don 3. Evnosure

(C3) > 1000 ft2

 $2 100 \le \text{ft}^2 < 1000;$

- 6 High; (3) Moderate; 1 Low Friability:
- Amount of Visible Friable Material: 0 < 10 ft²; 1 10 ≤ ft² < 100;
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
- (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth Ventilation: (Mark all categories that apply; maximum of 7 points.)
- 2 Interior return; 1 Fiber potential in air supply; (0) None of the above 5 Interior supply;
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
 - Activity (Refers to forces such as vibration, water or steam acting on material.)
- 5 High (constant vibration); (2) Medium (occasional vibration);
- 0-4 Unique situation (e.g., dirt floor) 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface;
 - Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
- A. Sprayed- or trowelled-on ceiling or walls
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire;
- B. Pipe, boiler, duct or other material percent of total exposed and visible to occupants
- 3 $50 < \% \le 75$; (4) $75 < \% \le 100$ $1 \le 25\%$; $2 \ 25 < \% \le 50$;
- $3 201 \le \text{pop} \le 500$ 2 $10 \le \text{pop} \le 200$; • Population: $(1) \le 9$ or for corridors;

Exposure Total

5 > 1001 or medical/youth centers/residential 4 501 ≤ pop ≤ 1000;

Cameron Station Building 2 171
Homogeneous Sample Area #(s) 6
Functional Space 2-4 Bang 4 much and and assert
Part 1: Damage/Risk
• Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; 0 None
• Water damage: 3 Yes; (1) No
 Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1 ≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance
• Type of material (If area contains several friable materials, score the one with the greatest quantity).
0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
• Potential for Contact based on material proximity to area occupants:
A. $< 10 \text{ ft}$: 8 High; 5 Medium; (2) Low
B. > 10 ft: 5 High; 3 Medium; 0 Low
• Asbestos content: Use percentage for material with highest probability for becoming airborne:
(1) 1 < $\% \le 30$; 3 30 < $\% \le 50$; 5 > 50%; NO HAZARD Samples contain no asbestos
• Sample Numbers: 438, 442, 443
Damage/Risk Total

Woodward-Clyde Federal Service

November 19, 1990

7 1

Inspector/Date Barres Guardien 2/15/41	an attende invalation	Material Type(s)
, , , , , , , , , , , , , , , , , , ,	Sullding	
	on Station	

Josep / Mechanica ダイ lomogeneous Sample Area #(s)_ 5-7 unctional Space

Part 2: Exposure

- Eriability: 6 High; 3 Moderate; (1) Low
- 2 100 < ft 2 < 1000; • Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $(1) 10 \le \text{ ft}^2 < 100$;
 - Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
- Ventilation: (Mark all categories that apply; maximum of 7 points.)
- 2 Interior return; 1 Fiber potential in air supply; 6 None of the above 5 Interior supply;
- 0 No perceptible air flow in area • Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream;
 - Activity (Refers to forces such as vibration, water or steam acting on material.)
 (5) High (constant vibration);

0 Low

- 0-4 Unique situation (e.g., dirt floor) 2 Seamed or rough surface; (1) Smooth surface; 4 Carpet;
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
 - Dalliele, (mass and mass)
 - A. Sprayed- or trowelled-on ceiling or walls
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 Nor
- B. Pipe, boiler, duct or other material percent of total exposed and visible to occupants
- $(1) \le 25\%$; 2 25 < % ≤ 50 ; 3 50 < % ≤ 75 ; 4 75 < % ≤ 100
- 5 > 1001 or medical/youth centers/residential 4 501 ≤ pop ≤ 1000; $3 201 \le pop \le 500$ 2 $10 \le pop \le 200$; • Population: $(1) \le 9$ or for corridors;

Exposure Total 16

Woodward-Clyde Federal Service

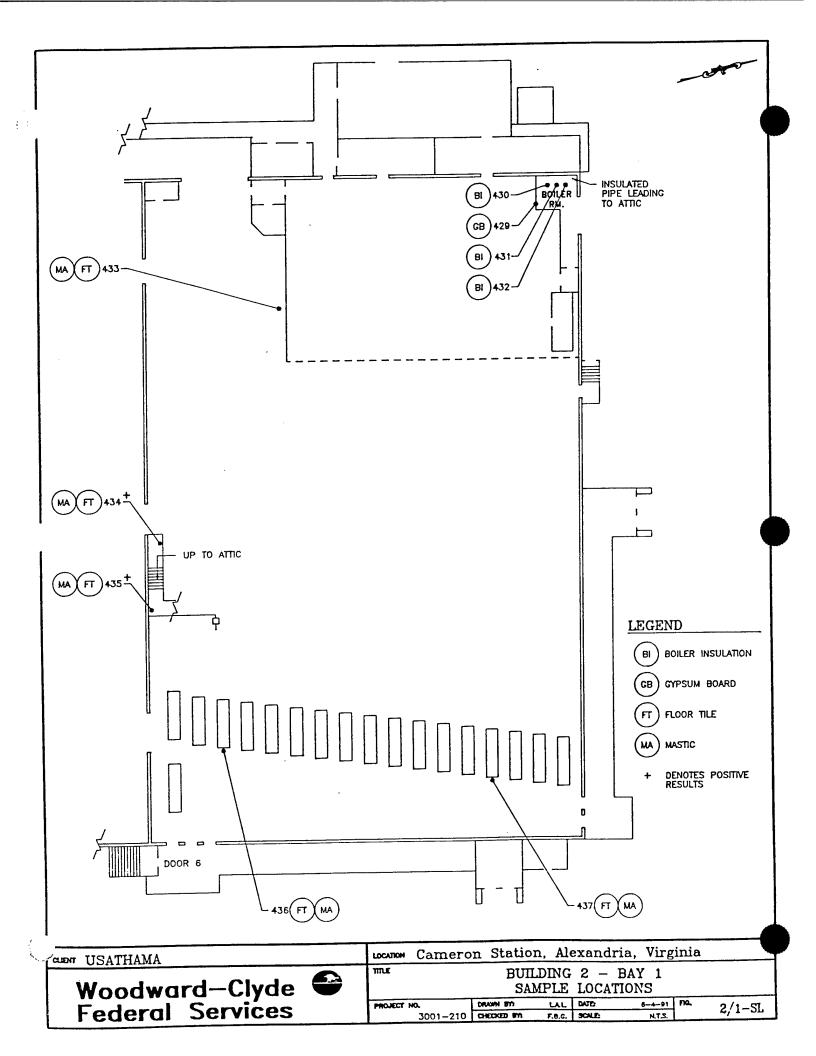
November 19, 195

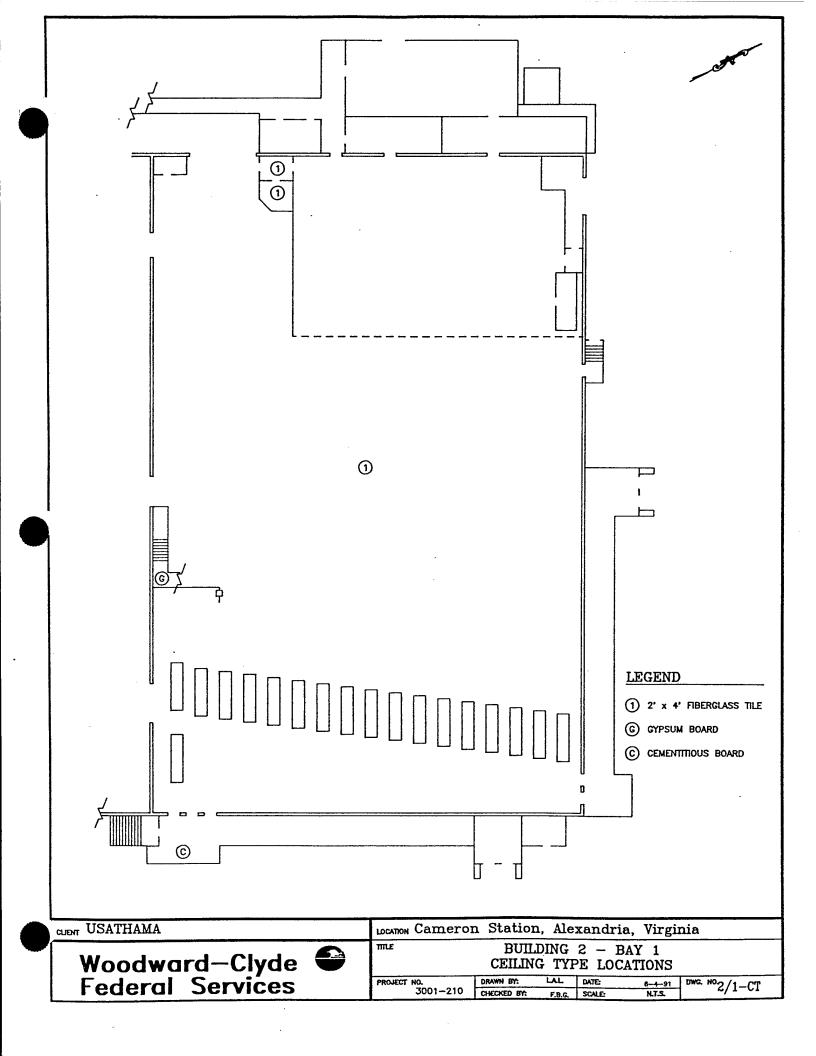
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	1
Material Type(s) Diput Lulling wrendow	maralarin , Cuertak
Tomogeneous Sample Area #(s) 6, the model from the sample Area #(s) 6, the model from the form	- moula ten
Functional Space Bay 6 a the	
Part 1: Damage/Risk	
• Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; 0 None	
• Water damage: 3 Yes; (0) No	
 Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of Journs.) 	
A Spraved- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1 < ft <5; 1 <5 ft; 0 <5 ft & no roul	e maintenance
Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0	No routine maintenance
• Type of material (If area contains several friable materials, score the one with the greatest quantity).	
 Potential for Contact based on material proximity to area occupants: 	
A. < 10 ft: 8 High; 5 Medium; (2) Low	
B. \geq 10 ft: 5 High; 3 Medium; 0 Low	
 Asbestos content: Use percentage for material with highest probability for becoming airborne: 	
(1) $1 < \% \le 30$; 3 30 < $\% \le 50$; 5 > 50%; NO HAZARD Samples contain no asbestos	
() () () () () () ()	
Damage/Risk Total 5	

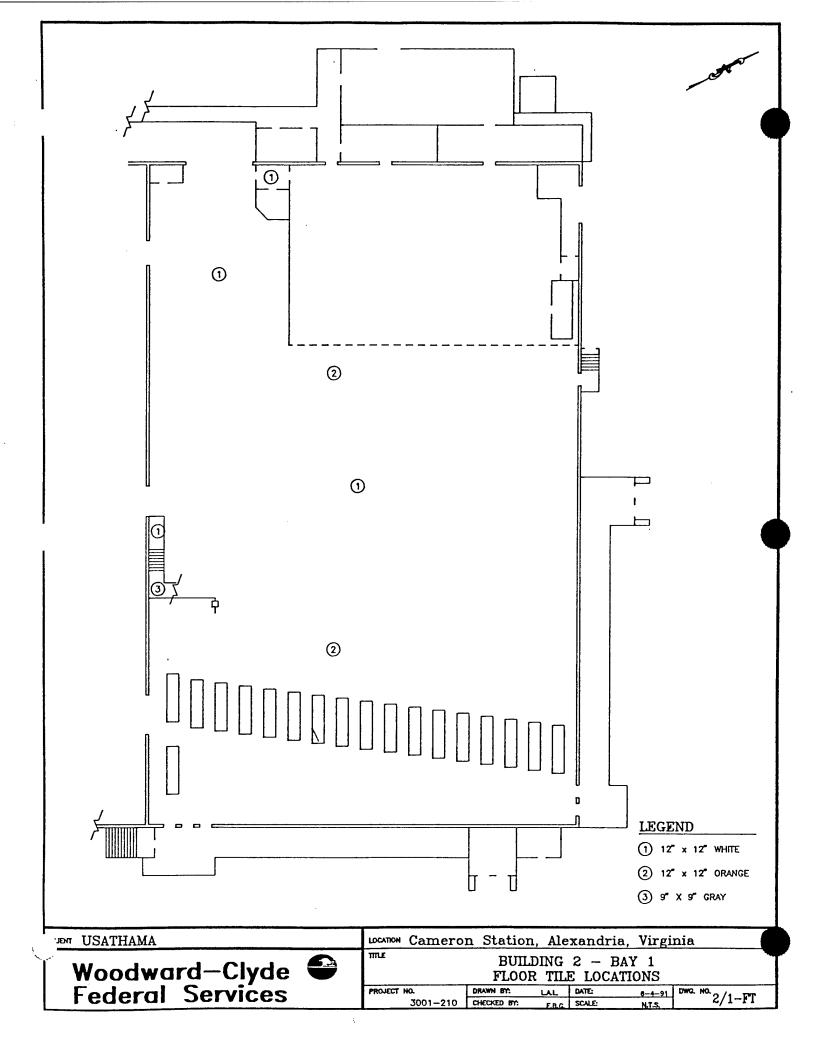
Inspector/Date Barres / Octaviles 2/15/9, Material Type(s) Pou Litter moulation commentel		00 ft ₂					No perceptible air flow in area			irt floor)						000; 5 > 1001 or medical/youth centers/resluential	Woodward-Clyde Federal Service
Sameron Station Building A Inspector/Date (Sarrius) (San	Functional Space 2-5 Ray & attc	srate; 1 Low	•	(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth	• Ventilation: (Mark all categories that apply; maximum of 7 points.)	5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above	5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0	 Activity (Refers to forces such as vibration, water or steam acting on material.) 	;(nc	• Eloor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)	• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)	A. Sprayed- or trowelled-on ceiling or walls	1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None	B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants	$(1) \le 25\%$; 2 25 < % ≤ 50 ; 3 50 < % ≤ 75 ; 4 75 < % ≤ 100	• Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$;	Exposure Total

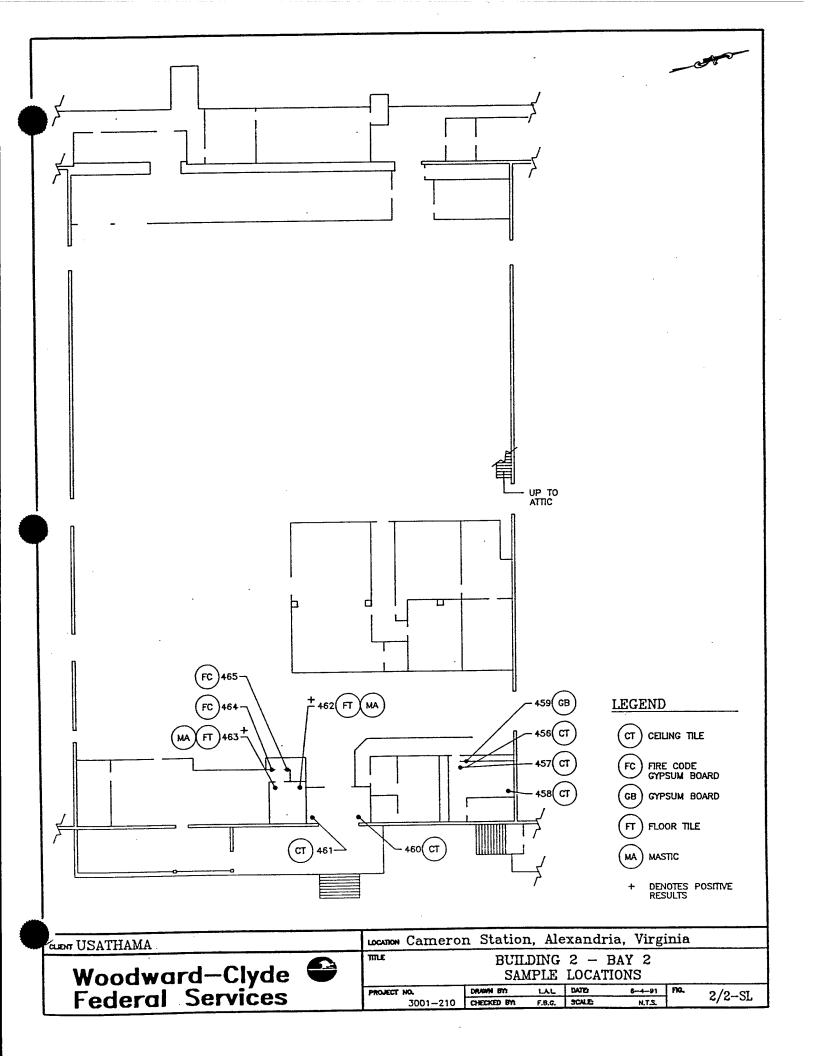
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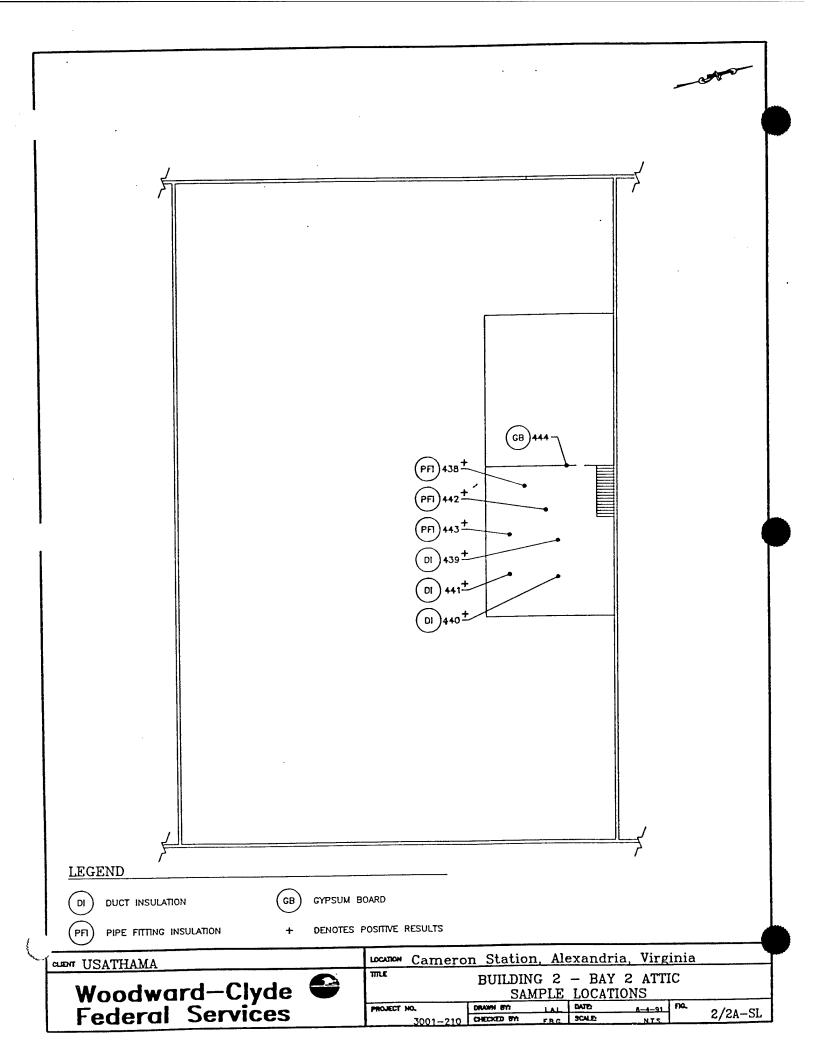
APPENDIX 2-C BUILDING DRAWINGS

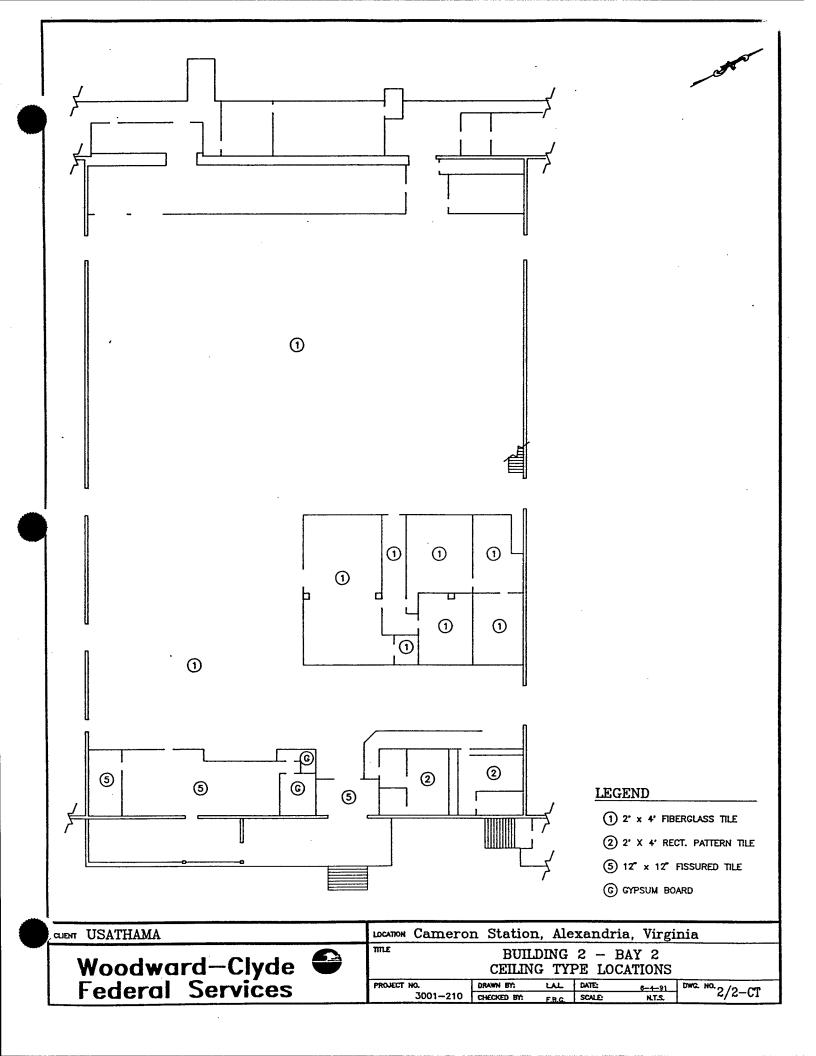


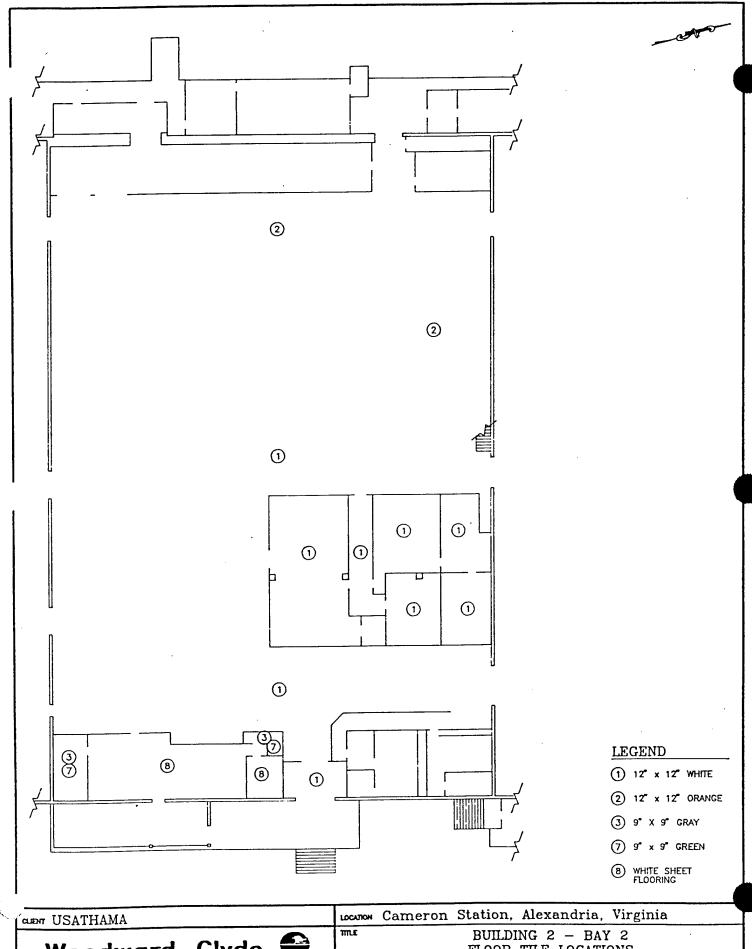


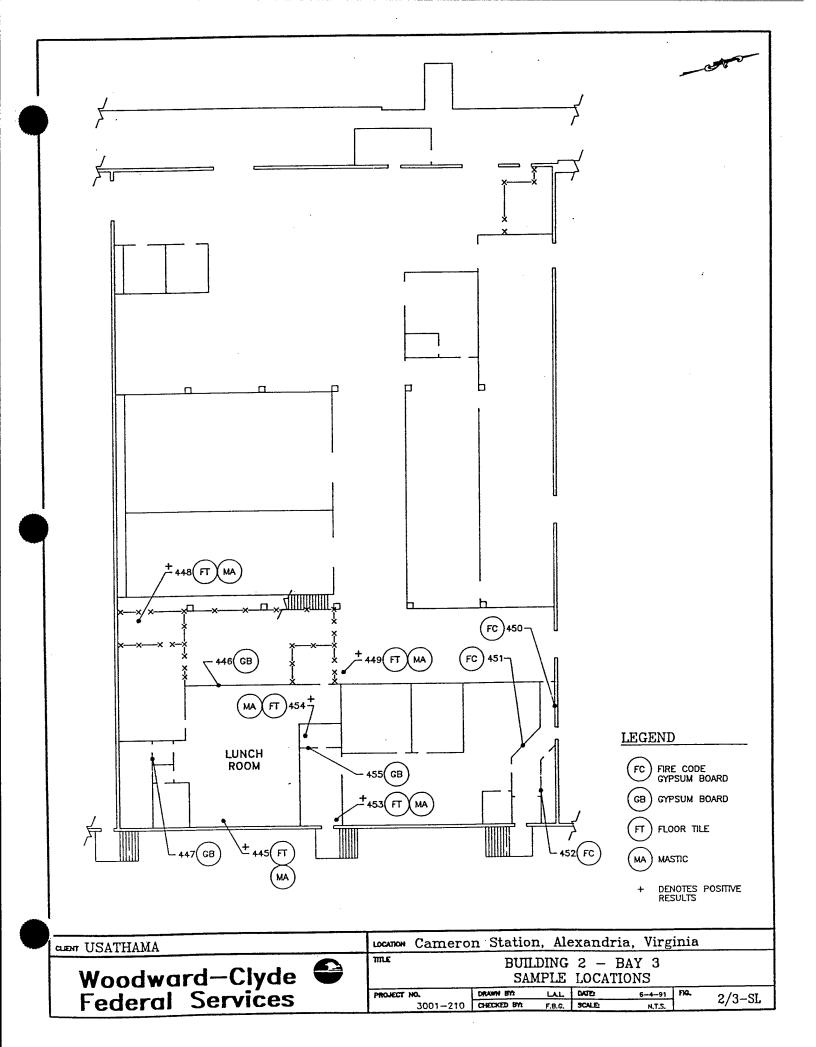


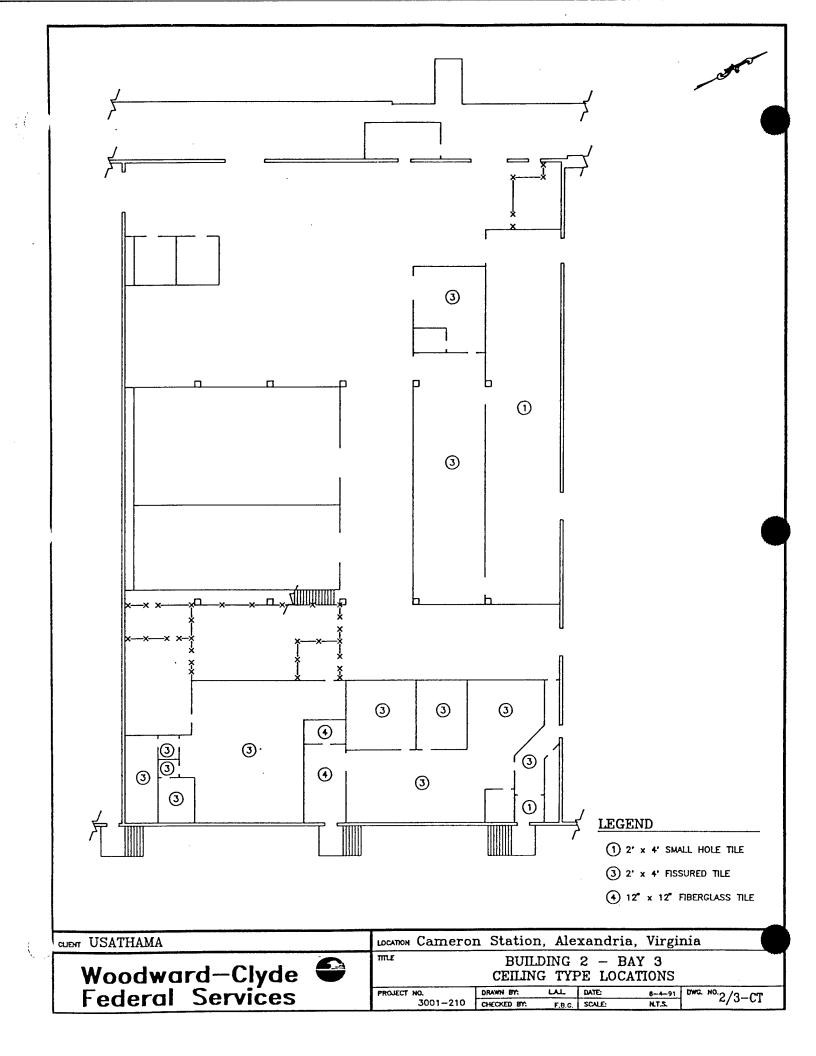


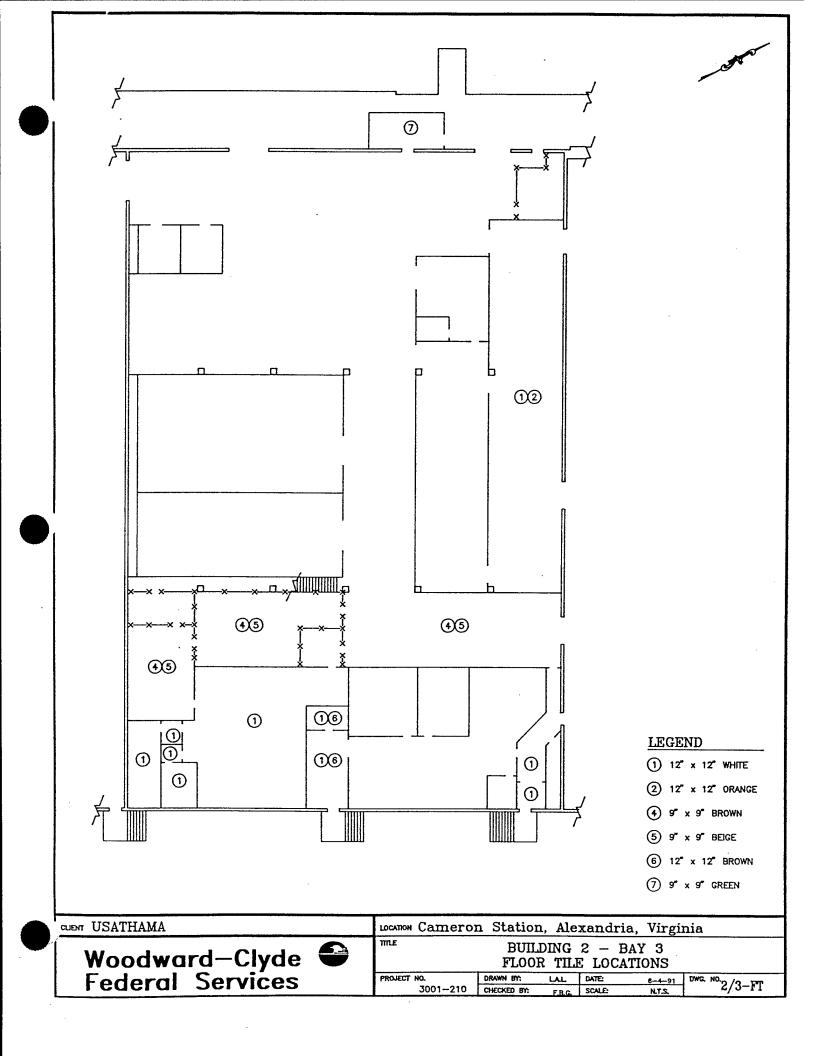


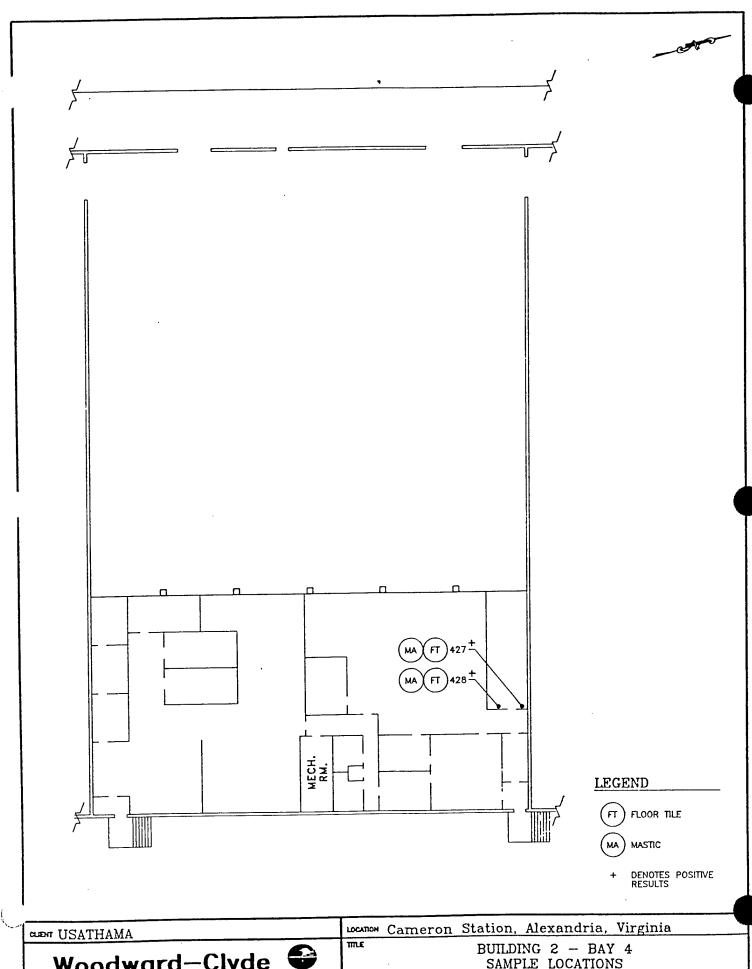




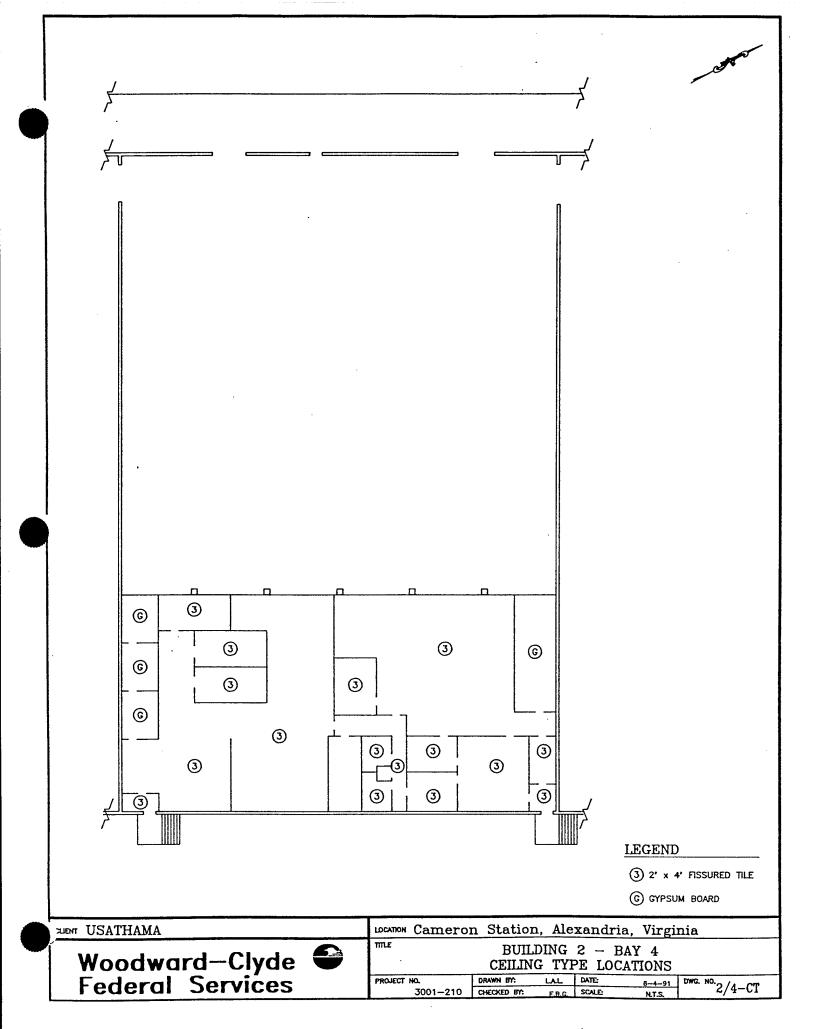


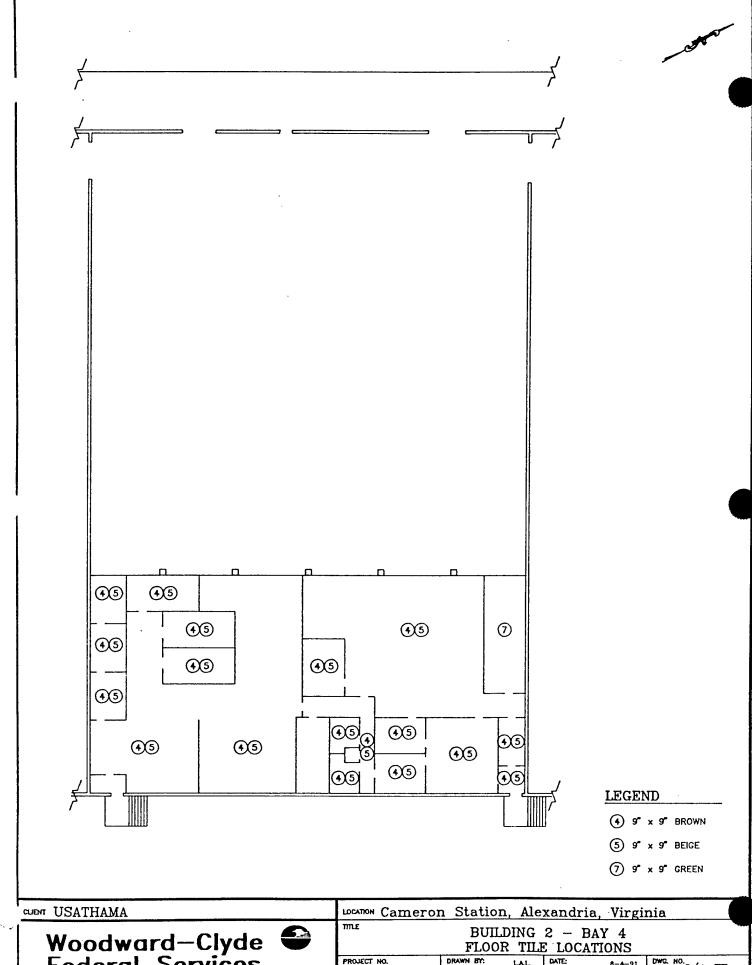




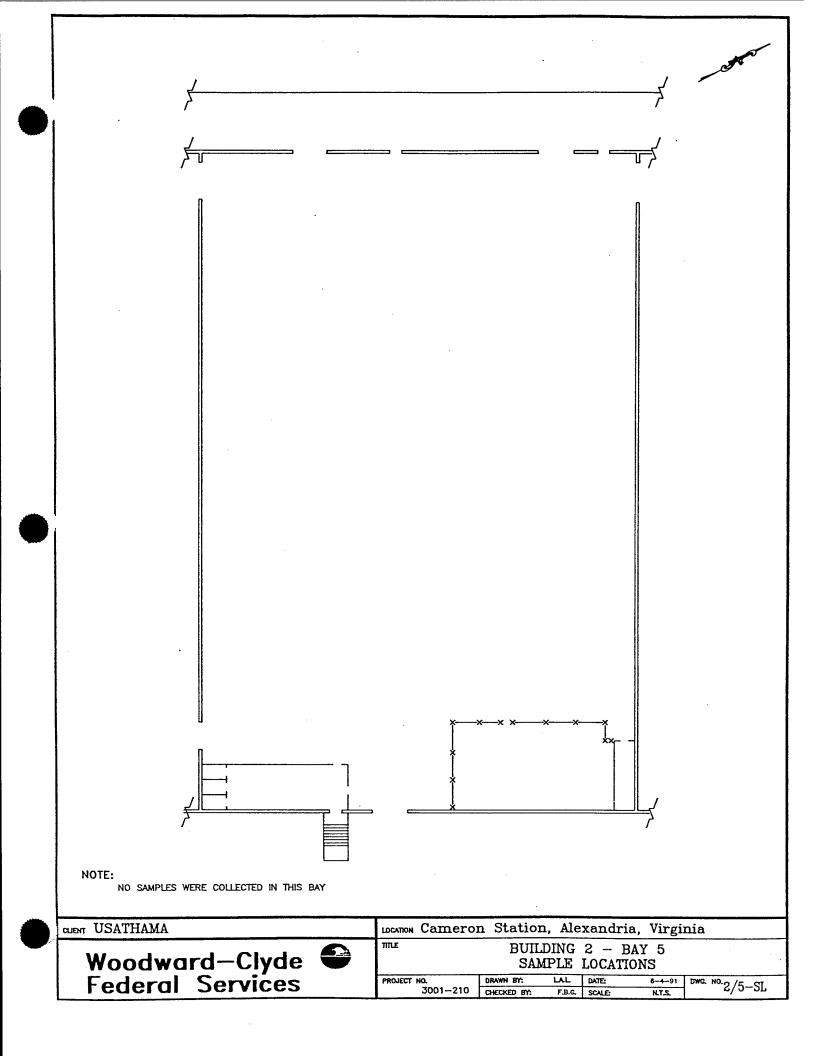


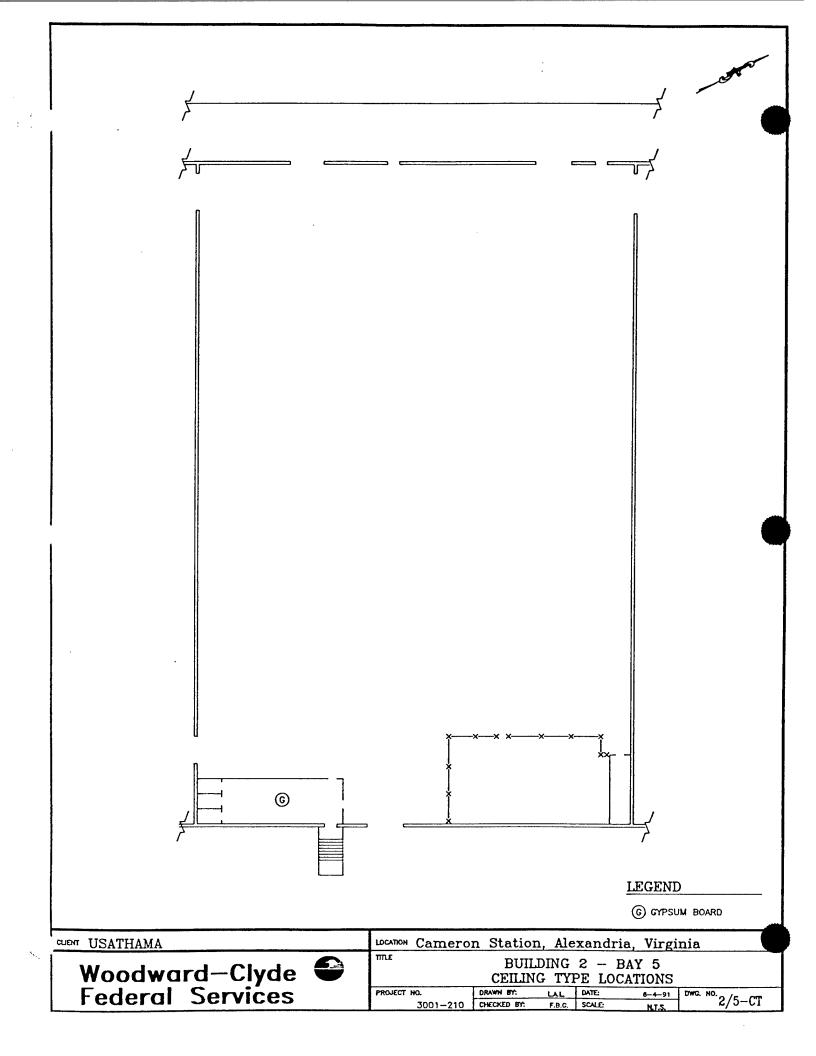
Woodward-Clyde Federal Services SAMPLE LOCATIONS 6-4-91 FIQ. DRAWN BY DATES 2/4-SL CHECKED BY 3001-210

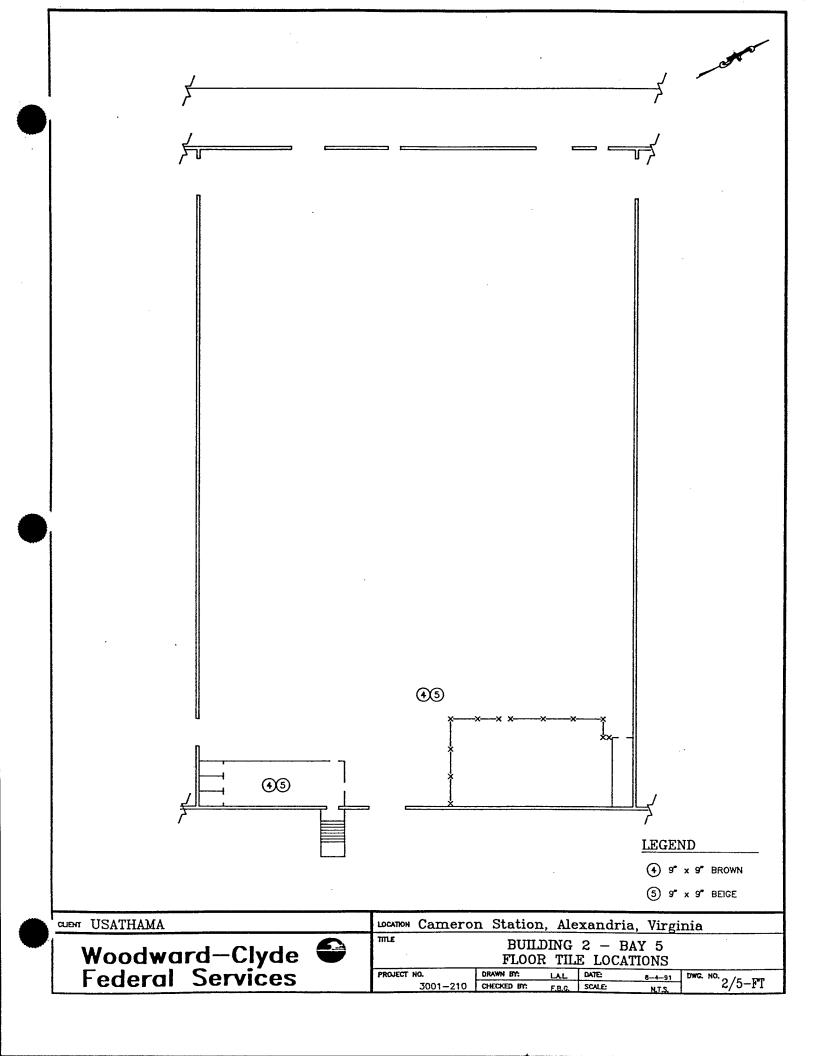


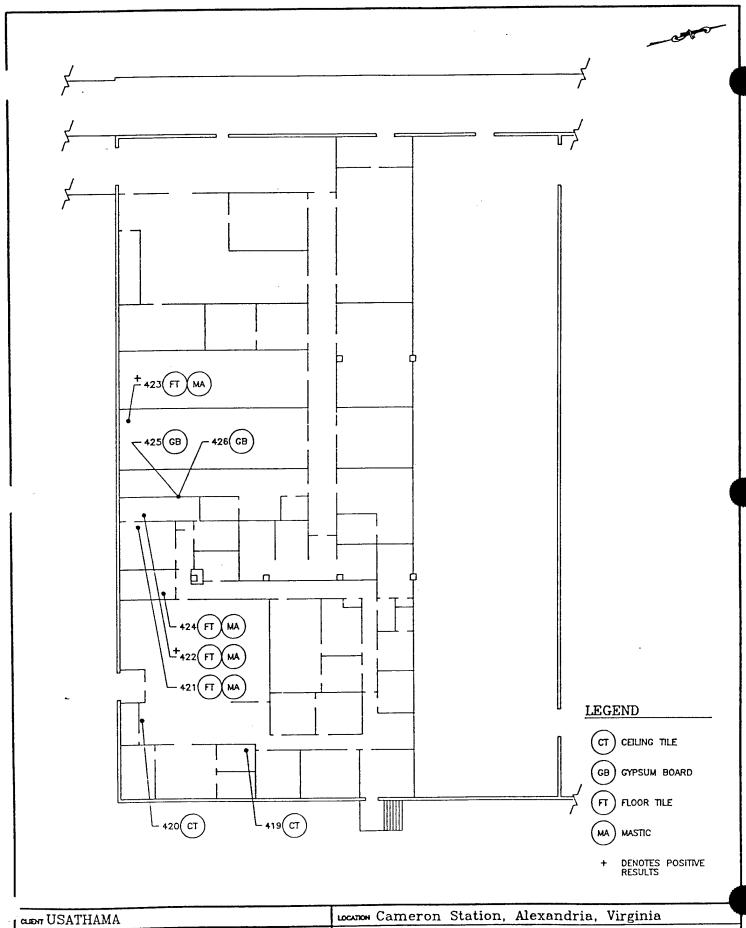


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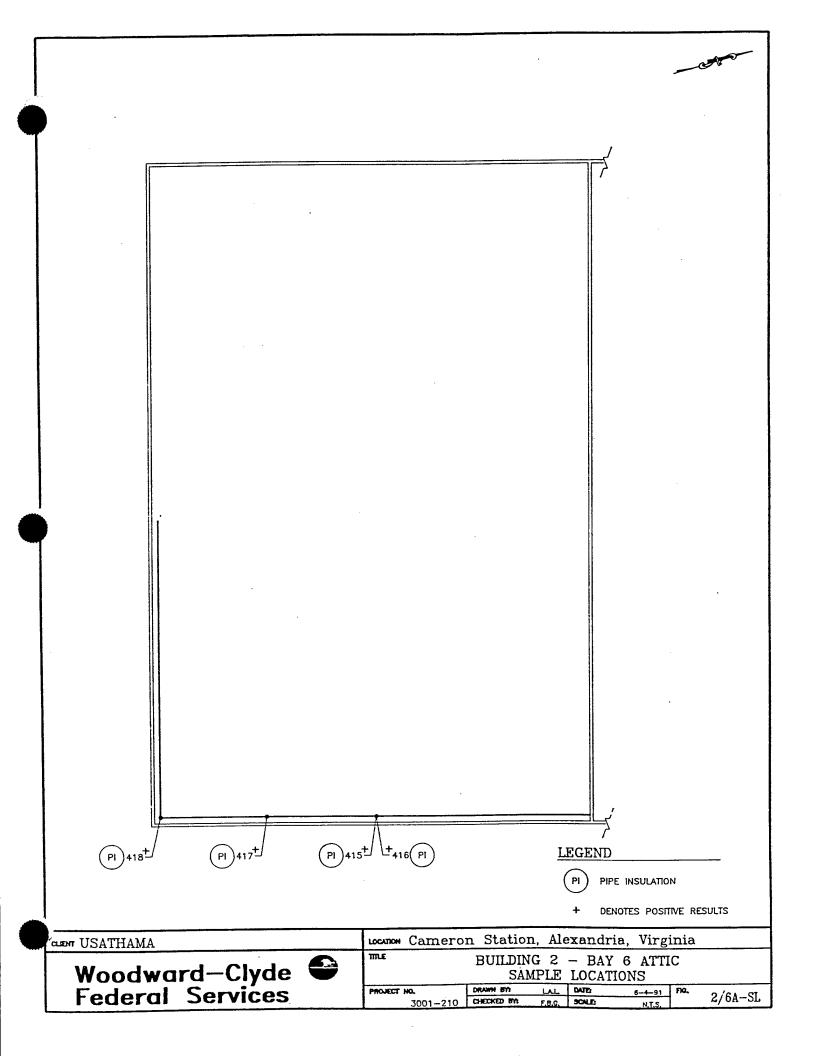


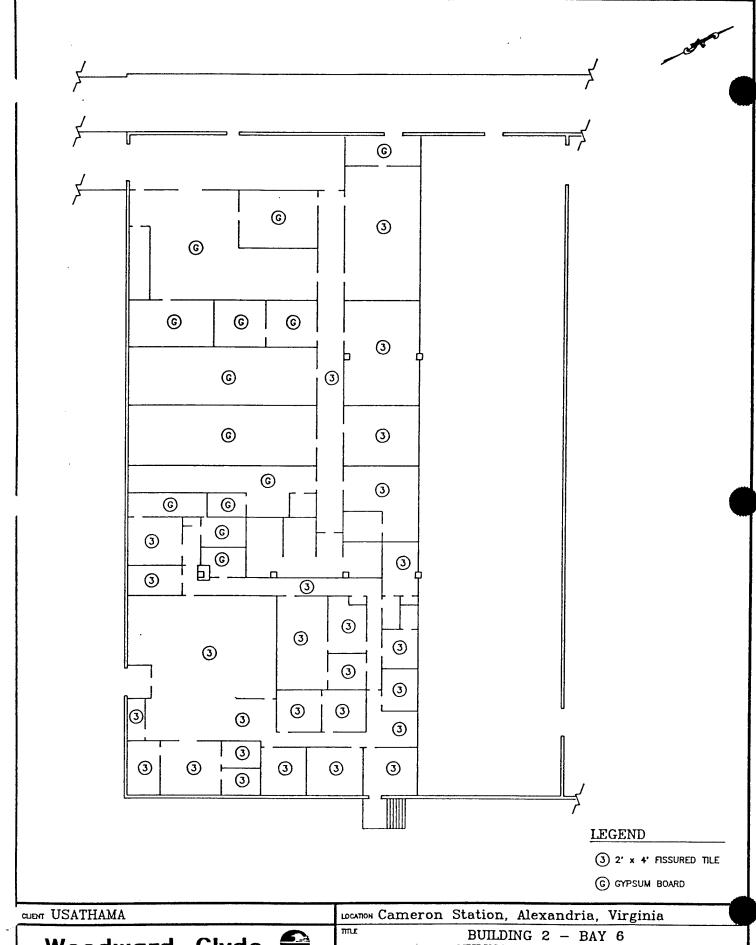




Woodward-Clyde
Federal Services

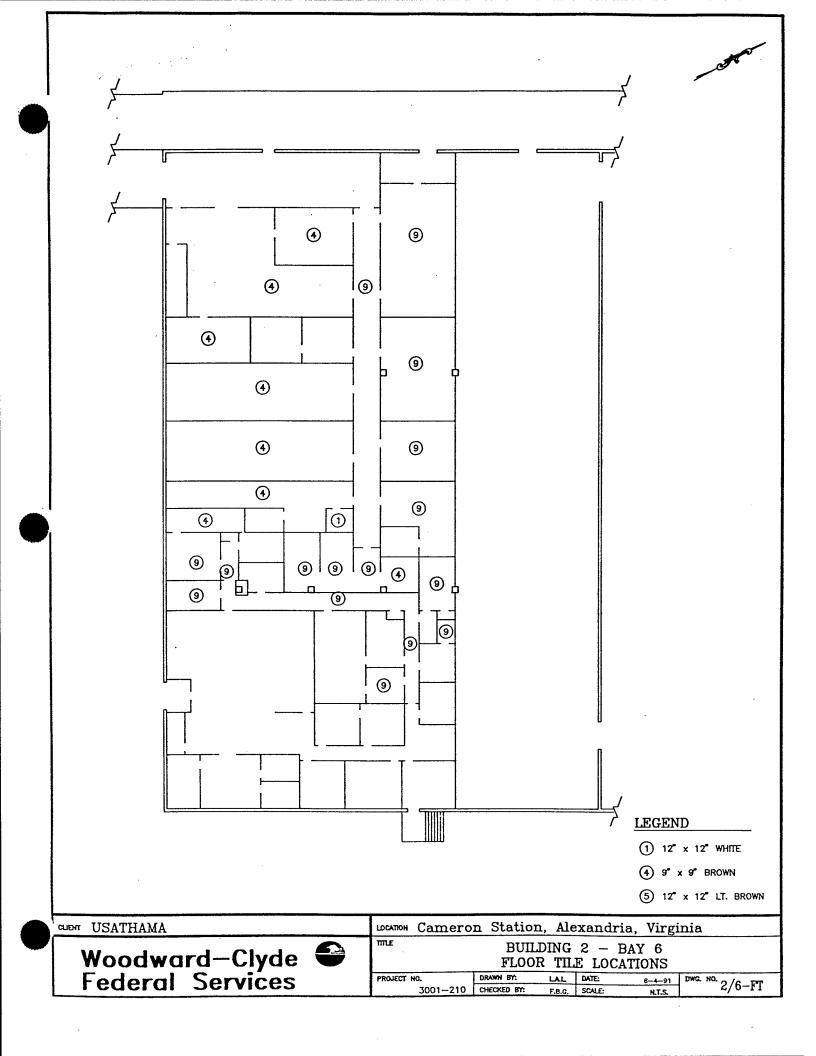
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Woodward-Clyde Federal Services BUILDING 2 — BAY 6
CEILING TYPE LOCATIONS

PROJECT NO. 3001-210 CHECKED BY: F.B.C. SCALE: N.T.S. DWG. NO. 2/6-CT



APPENDIX 2-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Station				Walkthrough Survey Data Sheet 1 of
Building #2		EXTERIOR	OR	Inspector Date $1/4/9/$
Exterior Siding				
Masonry Ed Steel/A	Steel/Aluminum	M∞od □	Asbestos Cement Shingle	Asphalt Shingle
Other	Soffit			
Sample Y (N)	Condition	F. P	Quantity SF	
<u>Roof</u> Shingle (asphalt/fiberglass) □	Assence Ident	? Steel Panel □	Fiberglass Panel	Other
Sample Y (N)	Condition G	EL EL	Quantity SF	
Exterior Mechanical Systems	<u>Sample</u>	Condition	Quantity	Location
国口	N X	G F P		
Chimney L	z <i>(z</i> .	ב ב ב ב ט פ		
ţ	?z	GFP		
Other	N X	GFP		
		IS	STRUCTURAL	
Wood Joists/Beams 臣	Steel Joists/Beams 区	Wood Columns	Steel Column E	Concrete Column E
Sample Y (N)	Condition G	Pr Ex	Quantity	
Sample Y (N)	Condition	FI FI	Quantity SF	
Firewalls - Steel	Masonry Ed		Firedoor	
Sample Y (Ñ)	Condition G	F P	Quantity SF	
				Woodward-Clyde Federal Ser

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building 2					Inspector/Date:		
	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							- 1
Bay1 - Borlan 8m		×		70	٨	Lan	200 5/
Breeching							
Furnace							
Tanks/Vessels							
Exhaustry to		^		٨.			
Bays atte				cant reach	N-Assume	8	2205
Elec./Telephone							
Other							
*Type of Insulation:	S Trowelled-on						

6. Mud
7. Other

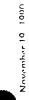
1. Fremolu
2. Blanket
3. Aircell
4. Fibergline

HVAC

Suilding Man	2				Inspecto	Inspector/Date: 1/4/9/		
	· Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	capero-K court	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	access to Bay#2	yes	Trewelled - on	8377	Jar	> 2000	SF	
					X			
Pipe	That a 14 has suiteralls	ze	mail	415	lai	209	T.	36.
	Bayl - Coffic		(wwo a tel					
	Bay 2 attic		and					
	30% i							
/ Fittings	BGy/ Byla Rin	408	mudeled	468	farr	76	of Leffs as	3-6.
,	١.						>	
	y nk				-	·		
Other	refier o							
Whaten	Ban 2 affic			Marson	5	30	3,6	
	3 / 4							
	(10)DO							

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

5. Trowelled-on6. Mud7. Other



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Sameron Station

INTERIOR - CEILING/WALLS/FLOORS/MISC.

					× 5.00.0.	60 60ch;							
		Ψ'	र	ď	र	र				V			
	Quantity	340ro	3050	1650	11 200	2300	0-51	750	88	4600			
ate:	Condition G F P	S		,,	"	"	"	Ţ	"	"			
Inspector/Date:	Sample Y N	٨	ī	"	"	"	"	"	ì	"			
	Location	Su drawing	, ,,	"	"	11	"	"	"	"			
	Color/Pattern	Chile	October 1.	Sion	him	See	ansig	gretm	1.6.7	14 brown			
Suilding 2	Material*	"X X X X X X X X X X X X X X X X X X X		2000			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7 9×0	* / 5 0	9 12 × 12			

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

4 of 4

INTERIOR - CEILING/WALLS/FLOORS/MISC.

	,	2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m			ケル・シャー								 1
		3 200 SE-	450	19500 R	300	1100							
ate:	Condition G F P	,	نحز	Ġ		, V							
Inspector/Date:	Sample Y N	7	>	`>	, A	\2\ 							
	Location	Suc chause		,,	, and the second section of the second process of the second second section of the second second second second	//							
	Color/Pattern	white 1sm holes	" /12×12 rect	" bound	" 0 "	u h							
Suilding 2	Material*	b x 7		3 2 2 2	\prod		2/X 2/ S						

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet



INTERIOR - CEILING/WALLS/FLOORS/MISC.

		(mobiles			יין צעילק? יין צעילק?		≕ ₁
	Quantity	85000 SF	5 000	< 5° 000	7118		
)ate:	Condition G F P	3	Ü	٥			
Inspector/Date:	Sample Y N	`\	×	>			
	Location	Throughout	Mont out in 8	Mello, why	Park cula.		
	Color/Pattern				Sons		
Juilding 2	Material*	Reg gups board	Just coroul gyp board	FC gyp board	inoralities beaut		

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Woodward-Clyde Federal Services

.... Jovember 19, 1990

APPENDIX 2-E LABORATORY CERTIFICATE OF ANALYSIS

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AMA Analytical Services, Inc.

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1

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 2
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/15/91

Date Analyzed : 02/21/91

Person Submitting: Sally Guardia

MICROSCOPY LIGHT POLARIZED (H) SUMMARY

		COMMENT															
	ANALYST	ID**	λs	AS	SS.	3 3	SZ.	S.	SZ.	S	S.	S.	5 8	AS	AS	S¥	
		PARTICULATE	15-25	15-25	30-40	20-30	30-40	30-40	100	90-95	66-56	100	75-80	75-80	66-56	95-99	
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	SAMPLE	a	415	416	417	418	419	420	421	422	423	424	425	426	427	428	

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

COMMENTS: * P * ASBESTOS PRESENT

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.



CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

Job Site : Cameron Station Job Number: 3001 .. Bldg #

: 02/21/91 : 02/15/91 Date Analyzed Date Sampled

Person Submitting: Sally Guardia

MICROSCOPY LIGHT POLARIZED

EH O

SUMMARY

COMMENT														
ANALYST ID**	AS	S¥3	AS	SK SK	AS	AS	AS	AS	AS	A.S	S R	SE SE	A S	8 8
PARTICULATE	85-90	65-70	65-70	65-70	100	95-99	86-06	100	100	40-50	40-50	40-50	50-60	40~50
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** ANALYST ID CODE (SEE LAST PAGE) N = ASBESTOS NOT OBSERVED COMMENTS: * P = ASBESTOS PRESENT

This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity nates because the submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity mates who was the person of the sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

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Woodward-Clyde Federal Services

1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 2
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/15/91
Date Analyzed : 02/21/91
Person Submitting: Sally Guardia

MICROSCOPY LIGHT POLARIZED ы О SUMMARY

COMPENT														
ANALYST ID**	SS.	y3	λß	3 3	\$3	SS.	SS.	æ	SZ.	AS	λS	S ¥	λs	SX.
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N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

COMMENTS: * P = ASBESTOS PRESENT

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Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 2 Job Site : Cameron Station Job Number: 3001

Date Sampled : 02/15/91

Date Analyzed : 02/21/91

Person Submitting: Sally Guardia

MICROSCOPY LIGHT POLARIZED **山**〇 SUMMARY

		COMMENT										
	ANALYST	ID**	AS	AS	AS	AS	AS	AS	y s	AS	SS.	
		PARTICULATE	30-40	30-40	85-90	35-40	30~39	69-09	69-09	95-99	90-95	
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PIBROUS	FIBROUS	GLASS	;	1		1	1	1	1	1		~
/ OTHER FIBROUS MATERIAL &/	MINERAL	MOOI	30-35	30-35	1 1 1	60-65	60-65	1	1	1	1	** ANALYST ID CODE (SEE SIGNATURE)
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	SAMPLE	g g	457	458	459	460	461	462	463	464	465	ō

LAST PAGE OF 4 PAGE(8)

- ASBESTOS NOT OBSERVED

Insulation Samples. Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk

Andreas Saldivar (AS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter Laboratories, this report is submitting them and, unless collected by personnel of these matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

TOODHARD CLYDE

BULK ANALYSIS SHEET of

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An AIHA and TAYLING Autrembed I spendory

May 29, 1991

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850

RE:

TEM Bulk Analysis

JOB SITE:

Cameron Station

JOB LOCATION:

Building 2

JOB NUMBER:

3001

Attention: Sally Guardia

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on May 14, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services, by telefax, on May 21, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

	ASBESTOS		DOLOMITE/	NON- FIBROUS
SAMPLE	CONC.	ORGANICS	CALCITE	MATERIAL
437	ОАИ	21%	76%	3%

NAO = NO ASBESTOS OBSERVED

Woodward-Clyde Federal Services May 29, 1991 Page 2 of 3

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically. A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq 5:1$ and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

<u>Results</u>

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

Woodward-Clyde Federal Services May 31, 1991 Page 3 of 3

AMA Analytical Services, Inc. thanks Woodward-Clyde Federal Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely, AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos

Electron Microscopist

Robert M. Powell (wmc)

Robert M. Powell Laboratory Director

LHB/kec

APPENDIX 2-F SAMPLE CHAIN-OF-CUSTODY FORMS

3001 WCFS Project

80 Installation (2): CM Sample Program (3): Laboratory (2):

eral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

rederal Services

Field Office: Woodward
Building 17
Door 2
Comeron Station
Alexandrio, VA 22304
703 617—7373

Admin. Office: Woodward—Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309—0800

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Site Type (4)									harely
File Type (3)									100
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Woodward-Clyde leral Services

WCFS Project (3001

Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES COC By: 6 16 19

Federal Services Field Office: Woodward
Building 1,
Door 2
Comeron Station
Alexandria, VA 22304
703 617—7373

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

Admin. Office:

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anlytical Services, Inc. White & Yellow: AM

FS Project Scientist

3001 WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

leral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 18 19

Tederal Services

Admin. Office: Woodward-Clyde Federal Services One Church. Street, Suite 404 Rockville, MD 20850 301 309-0800 Field Office: WoodwardBuilding 17
Door 2
Cameron Station
Alexandria, VA 22304
703 817-7373

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3001 WCFS Project

85

Installation (2): CM Sample Program (3): E Laboratory (2):

Woodward—Clyde teral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

61819 COC By:

Federal Services Field Office: Woodward Federal Building 1, Door 2 Cameron Station Alexandria, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Site ID (10)		45B 002	458002	A 58 002	A18002	458002	ASB002	ASBOOL	Woodward-Clyde Federal Services
Time of Sampling (Military Clock)	(4)								
WCFS Field Sampler Initials	(3)	189	F39	189	189	489	489	189	Relinquished Date: 2/5

White & Yellow: AMA Kanlytical Services, Inc.

Pink: WCF

FS Project Scientist

WCFS Project No. 5001

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde Haral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

coc By: F 18 19

'ederal Services Field Office: WoodwardBuilding 17
Boor 2
Comero Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Woodward-Clyde | eral Services

3001

WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES COC By: 6 19

Federal Services Field Office: Woodward—Federal
Building 17
Boor 2
Comeron Station
Alexandria, VA 22304
703 617—7373

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Admin. Office:

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5 Project Scientist

3001 WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

eral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

coc By: [18 19

Tederal Services Field Office: Woodward Building Boor 2 Cameron Station Alexandria, VA 22304 703 617-7373 Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY h JRD - USATHAMA SAMPLES

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Admin. Office:

Woodward-Clyde Federal Service: One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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FS Project Scientist

BUILDING 3

3.1 DESCRIPTION

Building 3 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof, typical of buildings at Cameron Station, is constructed of tar, felt and gravel over wood. The building is divided into six bays by masonry firewalls. Originally designed as a warehouse, it was converted to one floor of offices and attic space more than twenty years ago. Building materials on the main floor include carpet over floor tile, ceiling tile, regular and fire code gypsum board, plaster (in the restrooms and auditorium) and wall tile (in some secure areas). The overhead areas, which may be accessed through ladders in the custodial/phone closets, house the building's HVAC system. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

The Defense Logistics Agency is the current occupant of Building 3.

3.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 3-A through 3-F. A summary of this data is presented below.

3.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and six bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following two materials:

- Debris
- Pipe fitting insulation

These friable materials were found on two functional spaces and were assessed as follows:

• Debris in attic areas. Assessment of this material indicates a damage factor of 16 and an exposure factor of 22. According to the GAHA Index, this material ranks as a Priority B.

• Pipe fitting insulation in the mechanical room of Bay 6. Assessment of this material indicates a damage factor of 16 and an exposure factor of 23. According to the GAHA Index, this material ranks as a Priority B.

3.2.2 Suspect Nonfriable ACM

Sixteen homogeneous areas of suspect nonfriable ACM were identified and fifty-one bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- FT 1 9" x 9" brown floor tile and mastic
- FT 2 12" x 12" white floor tile and mastic
- FT 3 9" x 9" black w/white and green swirls floor tile and mastic
- FT 4 9" x 9" green floor tile and mastic
- WT 1 2' x 2' white wall tile
- Joint sealant

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

3.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and vibration cloth, are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

3.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection the following materials originally identified in the walkthrough survey as suspect ACM were examined more closely and reclassified as nonsuspect:

•	CT 1	1' x 2'	fiberglass ceiling tile
•	CT 2	2' x 4'	plastic ceiling tile
•	CT 3	2' x 2'	fiberglass ceiling tile
•	CT 6	2' x 4'	fiberglass ceiling tile

• FT 5 2' x 2' formica floor tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

3.4 AREAS NOT ACCESSED

The following areas in Building 3 were not accessed:

- Room 3B115
- Bay 2, attic section over Command and Control area.

3.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
3		6 MF *	

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

3.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 3-A ACM Survey Results

Appendix 3-B Assessments/Recommendations for Friable ACM

Appendix 3-C Building Drawings

Appendix 1-D Walkthrough Survey Data Sheets

Appendix 3-E Laboratory Certificate of Analysis

Appendix 3-F Sample Chain-of-Custody Forms

APPENDIX 3-A ACM SURVEY RESULTS

ACM Survey Results for Building 3

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	Comments		·			This material is found on ends and seams of fiberglass-insulated pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located.	CT 4 1' x 1' white w/fissures Replacement tile interspersed with CT 1
	Sample Results (% and type of asbestos)	Assume ACM	Assume ACM	5-10% chrysotile 5-10% chrysotile 5-10% chrysotile	None detected None detected 85-90% chrysotile	1-5% chrysotile 1-5% chrysotile	None detected
	Sample #	Assume ACM	Assume ACM	743 744 745	740 741 742	815 826	707 715
tity	Unit of Measure- ment (SF, LF or # of fittings)	R.S.	R.	:	# of fittings	ω π	π.
Quantity	Estimated Amount	130000	160	Unknown	ဖ	42000	3600
	Condition (Good, Fair, or Poor)	Good	goog	Poor	Fair i	Poog	Good
	Friability (Non, Low, Mod. or High)	Non	Non	High	High	c C	Non
	Location (where material is found)	Roof	Bays 1, 2, 3, 4, 5 & 6, on AHUs in attic areas	Bays 2, 5 & 6, on AHUs and by catwalks in attic areas	Bay 6, mechanical room	Bays 1, 2, 3, 4, 5, 6	See Drawings 3/1-CT 3/2-CT 3/3-CT 3/4-CT 3/5-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt	Vibration cloth	Debris	Pipe fitting insulation	Joint sealant	Ceiling tile
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	131	TSI	Misc.
	Homogen- eous Sample Area #	-	7	m	4	ស	ω

Woodward-Clyde Federal Services July 2, 1991

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ACM Survey Results T. Building 3 (continued)

	Comments	CT 5 2' x 4' white w/fissures Sample 725 is a QC for sample 723.	CT 7 2'x 4' white w/random holes	CT 8 2' x 2' white w/fissures Sample 748 is a QC for sample 747.	CT 9 2' x 4' fabric covered acoustical tile	CT 10 2′ x 2′ smooth w/random holes
	Sample Results (% and type of asbestos)	None detected None detected None detected	None detected None detected	None detected None detected None detected	None detected None detected	None detected None detected
	Sample #	723 724 725	728 729	746 747 748	703 704	700
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	т С	R R	ц v	RS.	F.
Quantity	Estimated Amount	16250	006	2100	1500	900
	Condition (Good, Fair, or Poor)	Doo S	рооб	0 0 0	Poop	poog
	Friability (Non, Low, Mod. or High)	Non	Non	C O N	N C O	No C
	Location (where material is found)	See Drawings 3/2-CT 3/3-CT 3/4-CT 3/5-CT 3/6-CT	See Drawing 3/3-CT	Room 3B206 Command Conference Room See Drawing 3/2-CT	Auditorium See Drawing 3/1-CT	Projection Room See Drawing 3/1-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Ceiling tile	Ceiling tile	Ceiling tile	Ceiling tile
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Miso.
	Homogen- eous Sample Area	7	ω	ത	01	=

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	Comments	FT 1 9" x 9" brown floor tile	FT 2 12" × 12" white floor tile	FT 3 9" x 9" black w/white and green swirls floor tile	FT 4 9" x 9" green floor tile
	Sample Results (% and type of asbestos)	5-10% chrysotile 5-10% chrysotile	1-5% chrysotile 1-5% chrysotile	5-10% chrysotile 1-5% chrysotile	1-5% chrysotile 5-10% chrysotile
	Sample #	705 706	710	735	726
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	S.	ι π	r G	r.
Quantity	Estimated Amount	46000	15000	3 6000	5225
	Condition (Good, Fair, or Poor)	good	P000	Pooo U	Good
	Friability (Non, Low, Mod. or High)	C .	c o Z	c o Z	Non
	Location (where material is found)	See Drawings 3/1-FT 3/2-FT 3/3-FT 3/4-FT	Corridors See Drawings 3/1-FT 3/2-FT 3/4-FT 3/6-FT	See Drawings 3/1-FT 3/2-FT 3/3-FT 3/4-FT 3/6-FT	See Drawings 3/3-FT 3/6-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	22	5.	4	ស

ACM Survey Results for Building 3 (continued)

	Comments	WT 1 2' x 2' white w/uniform holes		
	Sample Results (% and type of asbestos)	35-40% chrysotile 25-30% chrysotile	None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected < 1% chrysotile None detected None detected
	Sample #	738 739	711 713 722 730 731 732	702 709 712 719 734 736 737
tity	Unit of Measure- ment (SF, LF or # of fittings)	SF	n T	SF
Quantity	Estimated Amount	2000	>110000	> 130000
	Condition (Good, Fair, or Poor)	poog	poog	D000
	Friability (Non, Low, Mod. or High)	Non	NoN	c o N
	Location (where material is found)	See Drawings 3/2-WT 3/6-WT	Hallways & entrances	Interior walls: throughout building Ceilings: custodial closets & restrooms
Material Description	Type (e.g., pipe insulation; floor tile)	Wall tile	Fire code gypsum board	Regular gypsum board
Matorial	Category (surfacing TSI or misc.)	Misc.	Surfacing	Surfacing
	Homogen- eous Sample Area	16	17	8

	Comments		Sample 754 is a QC for sample 753.
	Sample Results (% and type of asbestos)	None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected None detected
	Sample #	716 717 718 720 721	749 750 751 753 753
iity	Unit of Measure- ment (SF, LF or # of fittings)	R.	п П
Quantity	Estimated Amount	. 5000	0000
	Condition (Good, Fair, or Poor)	poog .	Poog
	Friability (Non, Low, Mod. or High)	n o N	ro N
	Location (where material is found)	Restrooms	Auditorium and lobby ceiling
Material Description	Type (e.g., pipe insulation; floor tile)	Plaster See Drawing 3/2-CT 3/4-CT	Plaster See Drawing 3/1-CT
Material	Category (surfacing TSI or misc.)	Surfacing	Surfacing
	Homogen- eous Sample Area	19	20

APPENDIX 3-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 3.

	Recommended Management Corrective Action	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	ထ	ω
	Exposure Factor	22	23
	Damage/Risk Factor	16	6
Material Description	Type (e.g. pipe fitting insulation)	Debris	Pipe fitting insulation
1 1	Category (surfacing TSI or misc.)	TSI	TSI
	Homogen- eous Sample Area	r	4
	Functional Space	3-1 Bays 2, 5 & 6	3-2 Bay 6, mechanical room

Friable Asbestos Assessment Checklist Inspector [Inspector (2) min. (3) 3/9/1	3 Material Types 25 G. C. Arie August		• Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None	• Water damage: 3 Yes; (10 No Mater damage: 3 Yes; (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)	• Proximity of material to routine maintenance A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1 ≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1 ≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance	 B. Pipe, boiler or duct insulation: Several friable materials, score the one with the greatest quantity). Type of material (If area contains several friable material; (1) Boiler/pipe; HVAC; Ceilings/walls 	 Potential for Contact based on material proximity to area occupants: 	A. < 10 ft: (8) High; 5 Medium; 2 Low	B. \geq 10 ft. 5 High; 3 Medium; 0 Low	 Asbestos content: Use percentage for material with highest probability for becoming airborne: 	\bigcirc 1 < $\%$ ≤ 30 ; 3 30 < $\%$ ≤ 50 ; 5 > 50%; NO HAZARD Samples contain no asbestos	• Sample Numbers: 743 744 145	
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Building_	
Station	
ameron	

Inspector

Material Type(s) Ollow

Homogeneous Sample Area #(s) 3

р Б У Functional Space 3 - 1 Bays 2,

Part 2: Exposure

> 1000 ft₂

- 3 Moderate; 1 Low • Friability: (6) High;
- Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $10 \le \text{ft}^2 < 100$; $2 100 \le \text{ft}^2 < 1000$;
- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
 - (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth

• Ventilation: (Mark all categories that apply; maximum of 7 points.)

- 5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 0 None of the above
- <u>Air Movement</u>: 5 Routine turbulent/abrupt air movement; Z Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)
- 5 High (constant vibration); (2) Medium (occasional vibration);
- 0-4 Unique situation (e.g., dirt floor) 4 Carpet; (12) Seamed or rough surface; 1 Smooth surface;

0 Low

• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

• Floor:

- A. Sprayed- or trowelled-on ceiling or walls
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire;
- B. Pipe, boiler, duct or other material percent of total exposed and visible to occupants
- 3 $50 < \% \le 75$; $(4)/75 < \% \le 100$ $1 \le 25\%$; $2 \ 25 < \% \le 50$;
- 3 $201 \le \text{pop} \le 500$ 2 $10 \le \text{pop} \le 200$; • Population: $(1) \le 9$ or for corridors;
- 4 501 ≤ pop ≤ 1000;
- 5 > 1001 or medical/youth centers/residential

Exposure Total

Woodward-Clyde Federal Services

Friable Asbestos Assessment Checklist Character C
Material Type
Functional Space 1997 6 Medicine 1 1987
Part 1: Damage/Risk
• Visible evidence of physical damage: 5 High; A Moderate; 2 Low; 1 Minimal; 0 None
• Water damage: 3 Yes; 6 No
aximum
9
B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance.
st quantity).
0-4 Other friable material; A Boiler/pipe; 3 HVAC; 4 Ceilings/walls
• Potential for Contact based on material proximity to area occupants:
A. $< 10 \text{ ft}$: 8 High; (5) Medium; 2 Low
B. > 10 ft: 5 High; 3 Medium; 0 Low
 Asbestos content: Use percentage for material with highest probability for becoming airborne:
$1.1 < \% \le 30$; $3.30 < \% \le 50$; $(5.5) > 50\%$; NO HAZARD Samples contain no asbestos
• Sample Numbers:
Damage/Risk Total (C

Woodward-Clyde Federal Services

Inspector (Canal Glander ?)	Material Type(s) By Juliang would
Building 3	7
Ctation	Cameron Station

Part 2: Exposure

> 1000 ft₂

• Friability: (6) High; 3 Moderate; 1 Low

Homogeneous Sample Area #(s)_

Functional Space_

• Amount of Visible Friable Material: $(0) < 10 \text{ ft}^2$; $1 \text{ 10} \le \text{ft}^2 < 100$; $2 \text{ 100} \le \text{ft}^2 < 1000$;

• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth

• Ventilation: (Mark all categories that apply; maximum of 7 points.)

5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above

0 No perceptible air flow in area • Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream;

Activity (Refers to forces such as vibration, water or steam acting on material.)

(5) High (constant vibration); 2 Medium (occasional vibration);

0-4 Unique situation (e.g., dirt floor) 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface;

• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

Floor:

A. Sprayed- or trowelled-on ceiling or walls

3 Railing or wire; 1 Suspended ceiling; 2 Encapsulation; B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

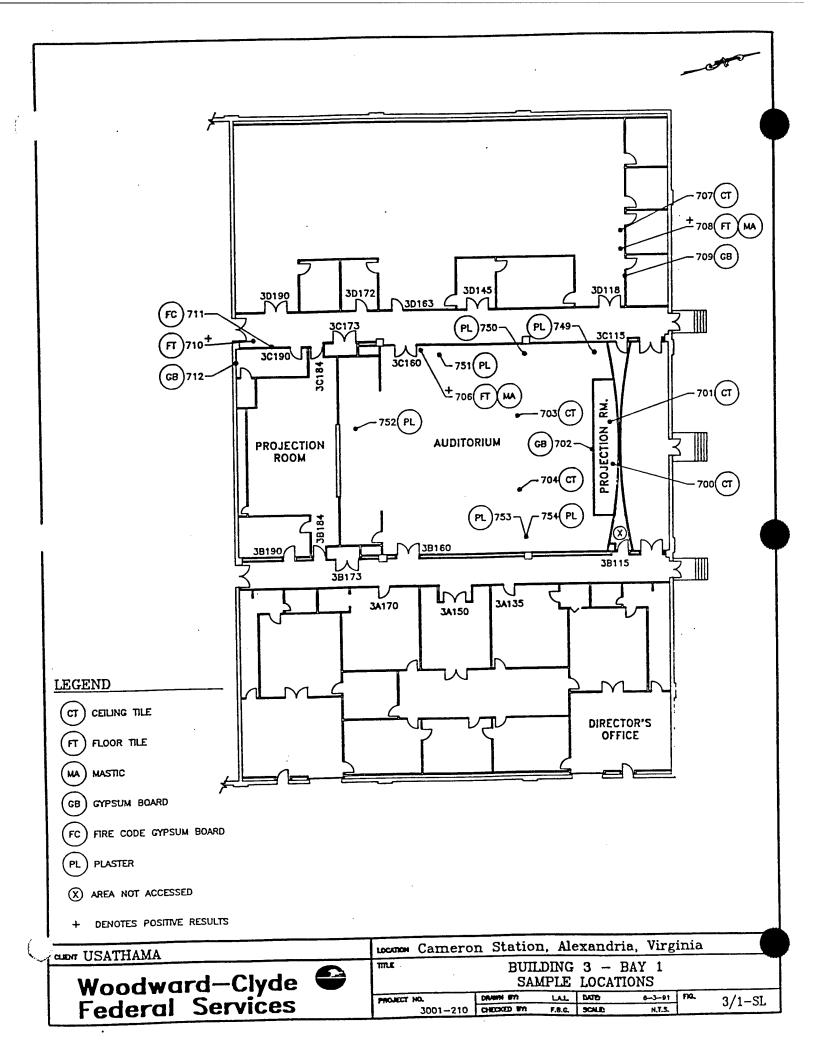
3 $50 < \% \le 75$; (4) $75 < \% \le 100$ $1 \le 25\%$; $2 \ 25 < \% \le 50$;

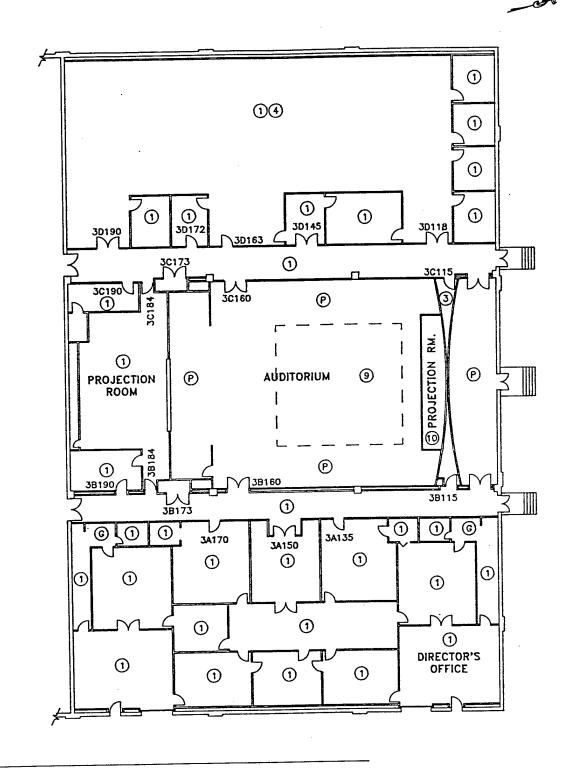
5 > 1001 or medical/youth centers/residential $501 \le \text{pop} \le 1000$; 4 $3 201 \le \text{pop} \le 500$ 2 $10 \le \text{pop} \le 200$; Exposure Total • Population: $(1) \le 9$ or for corridors;

Woodward-Clyde Federal Service:

November 19, 199

APPENDIX 3-C BUILDING DRAWINGS





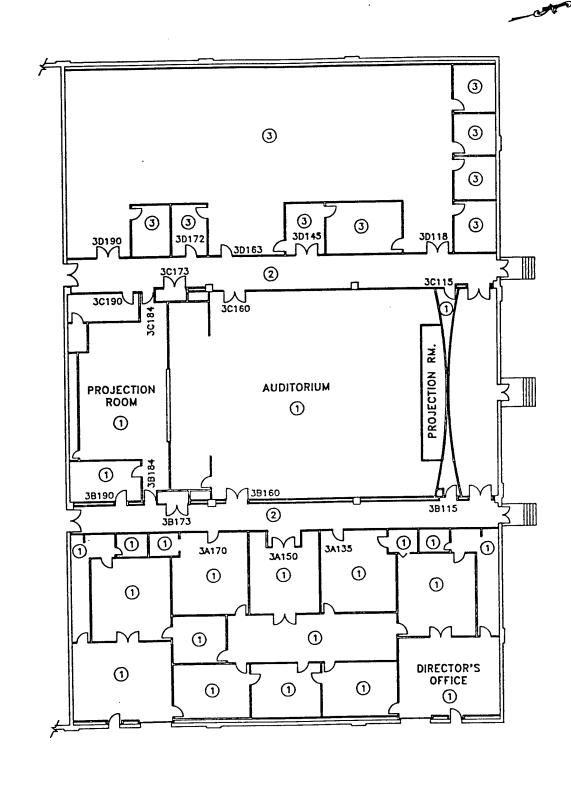
- 1 1' x 2' GROOVED FIBERGLASS TILE
- 3 2' x 4' PLASTIC TILE

10 2' x 2' SMOOTH WITH RANDOM HOLES

4 1' x 1' FISSURED TILE

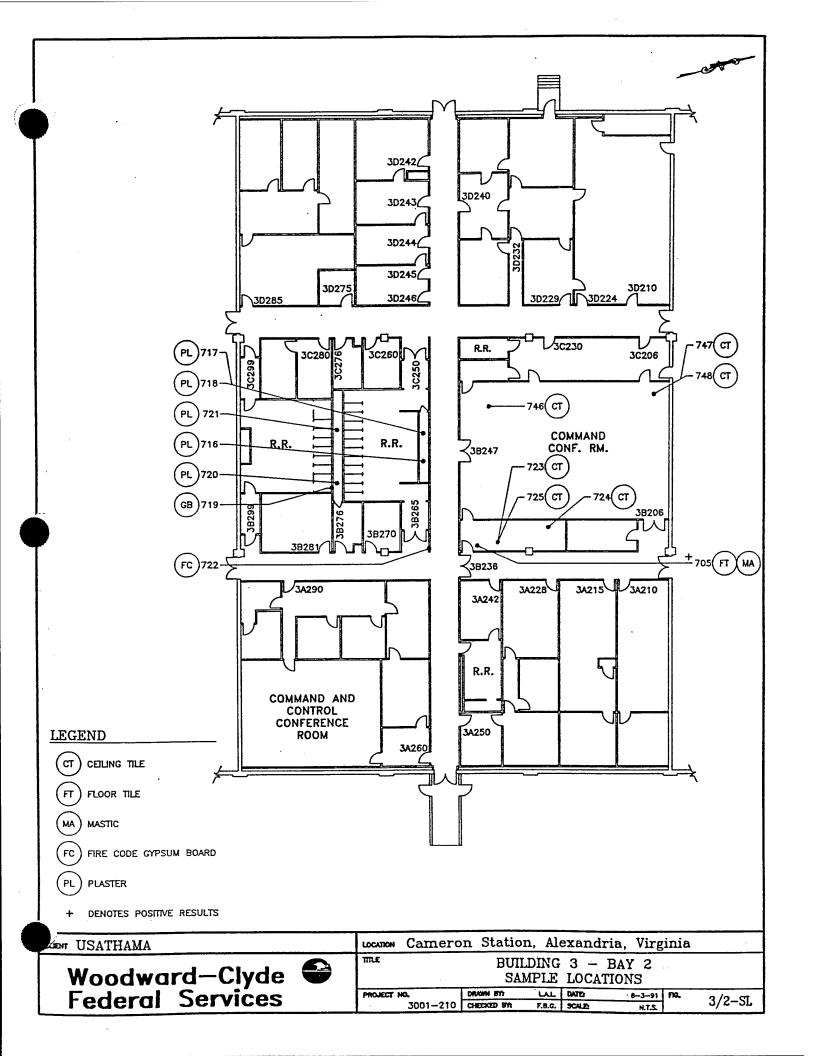
- G GYPSUM BOARD
- 9 2' x 4' FABRIC COVERED ACOUSTICAL TILE
- P PLASTER

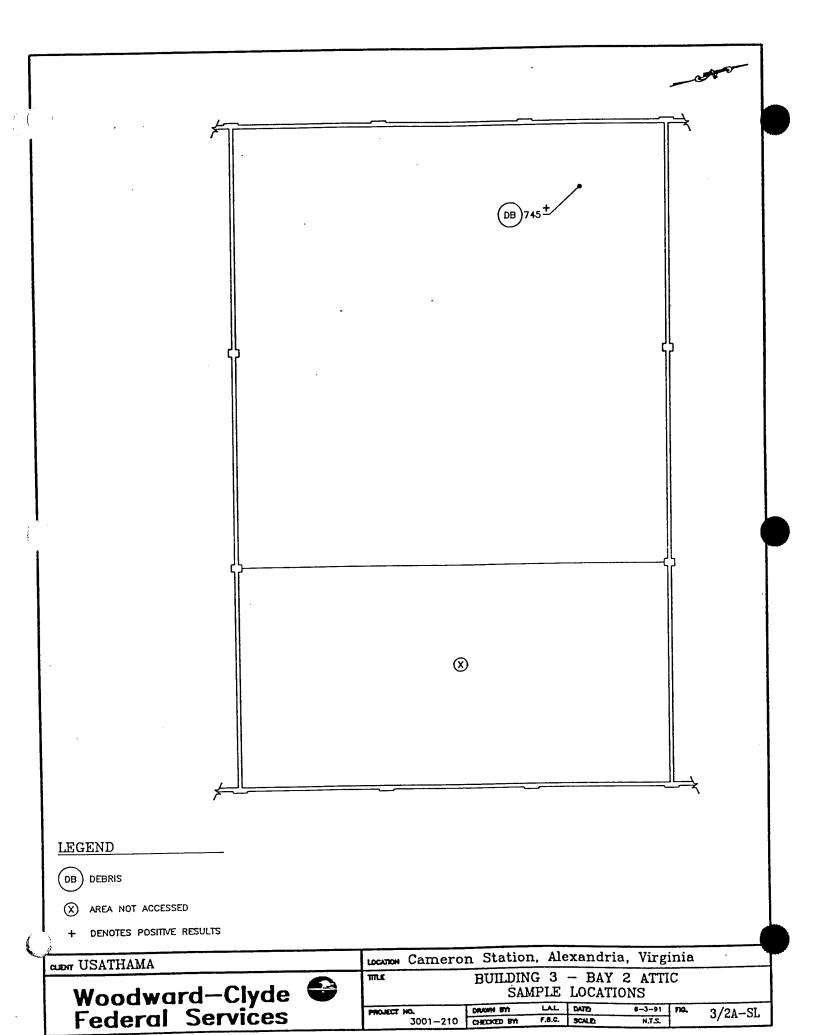
CLENT USATHAMA	LOCATION	Camero	n Station	, Ale	exandr	ia, Virg	inia	
Woodward-Clyde	TITLE				3 - 3 PE LO	BAY 1 CATIONS	!	
Federal Services	PROJECT		DRAWN BYS	LA.L. F.B.G.		8-3-91 N.T.S.	FIQ.	3/1-CT
LEUGIUI DEI AICCO	1	3001-210	CHECKED BIT	r.d.6.	3CALE:	N.1.3.		

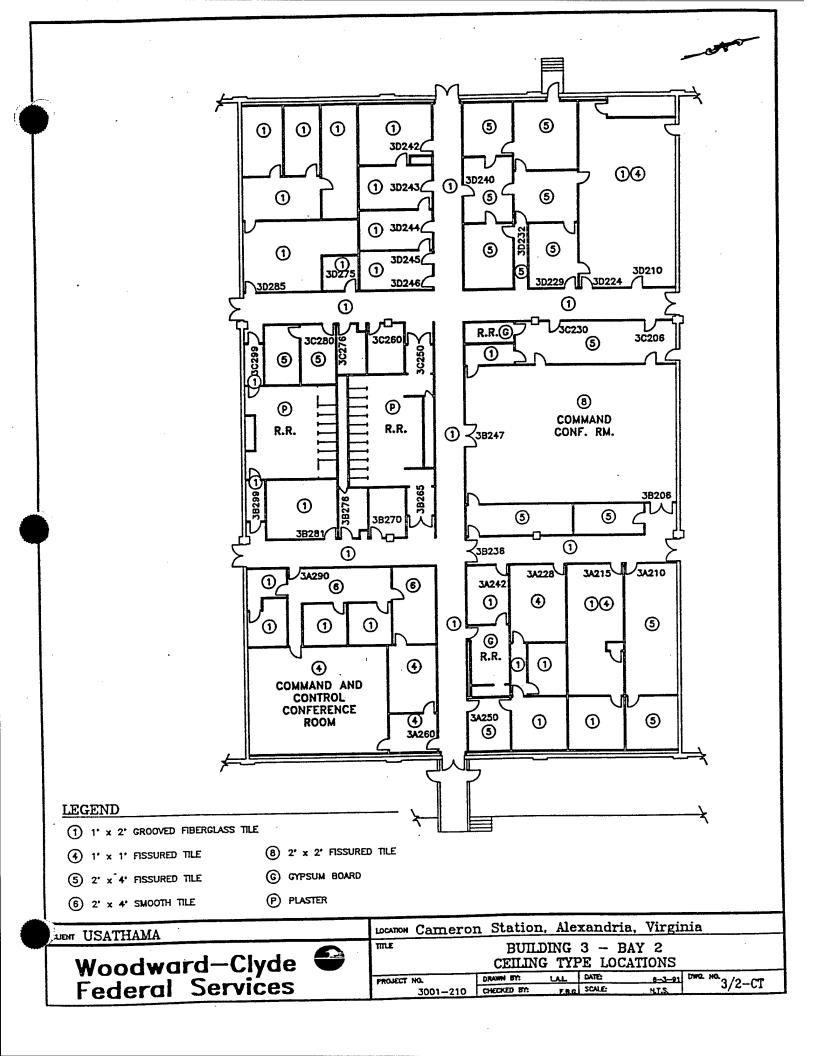


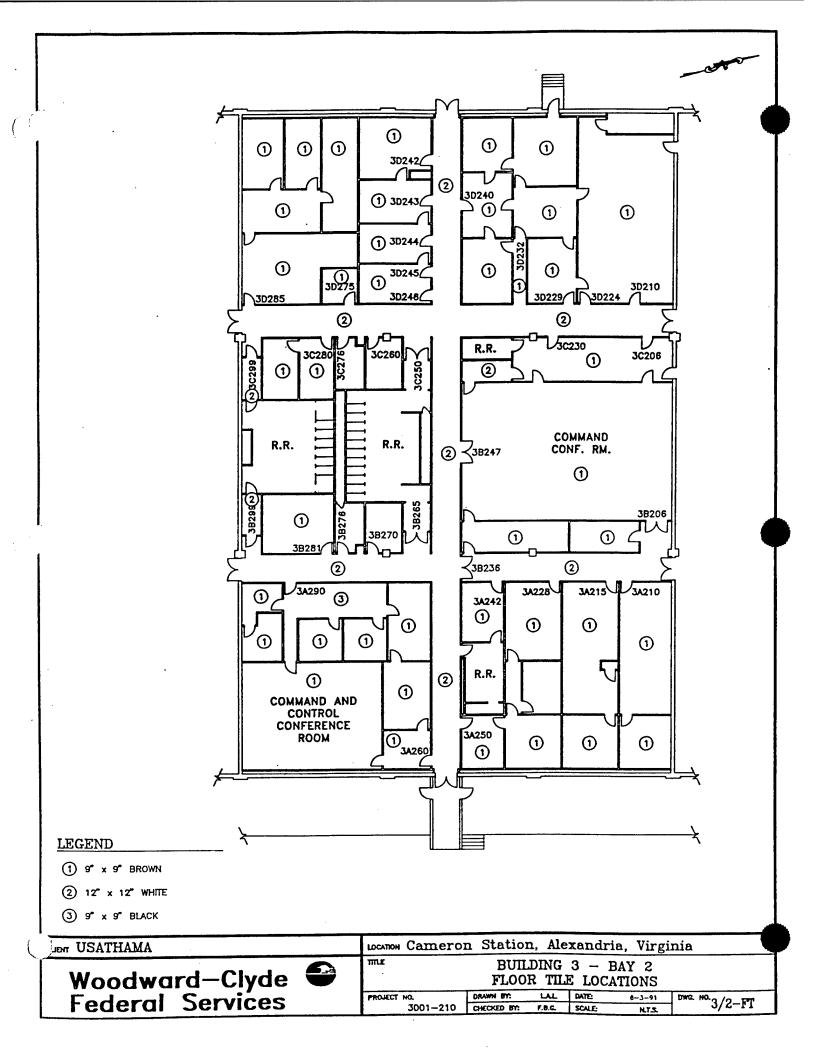
- 1 9 x 9 BROWN
- 2 12° x 12° WHITE
- 3 9" x 9" BLACK

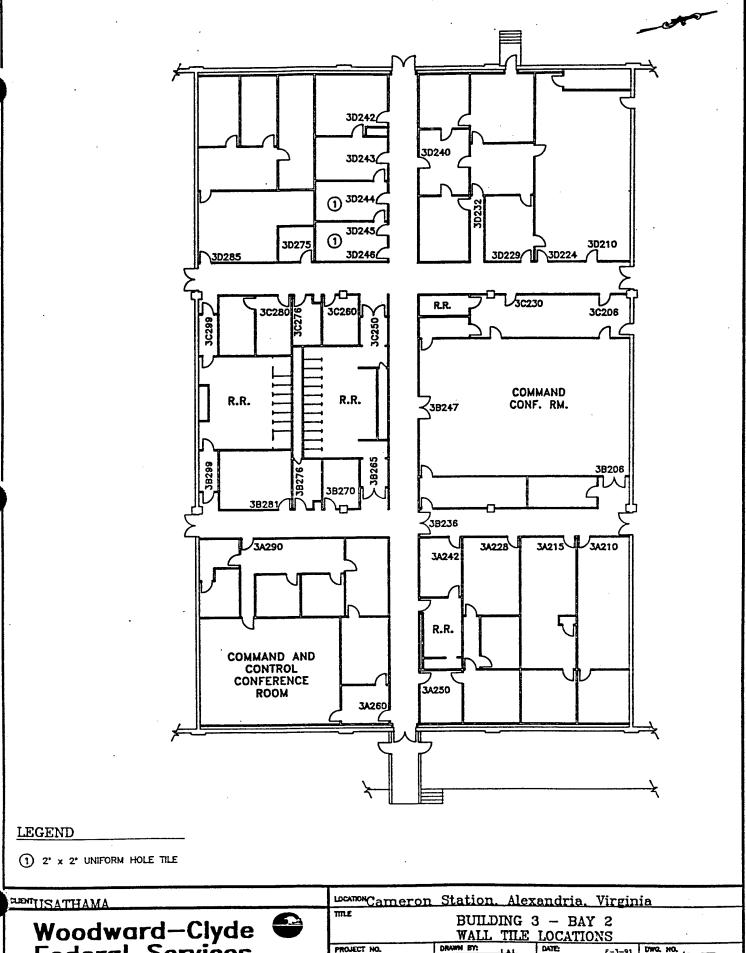
CLEMT USATHAMA	LOCATION Camero	n Station	, Ale	exandria	a, Virg	ginia	
Woodward-Clyde 😂	BUILDING 3 — BAY 1 FLOOR TILE LOCATIONS						
Federal Services	PROJECT NO. 3001-210	DRAWN BY: CHECKED BY:	F.B.Q.	DATE: SCALE:	6-3-91 .2.T.n		3/1-FT



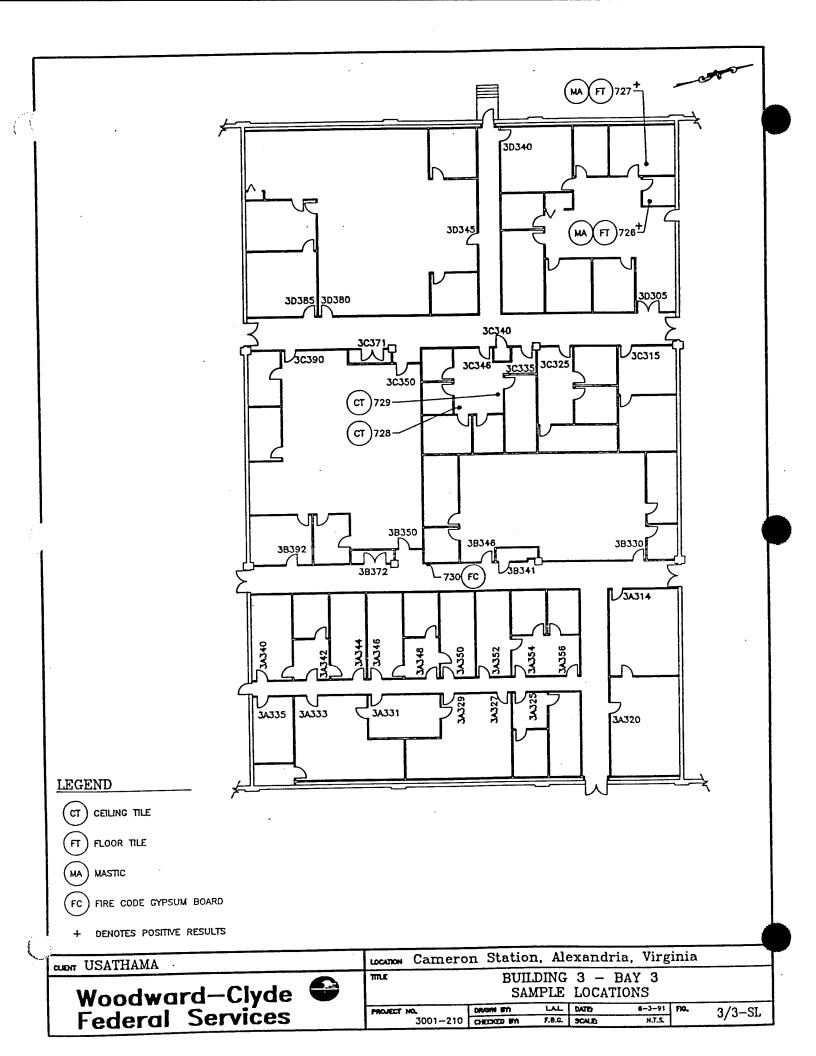


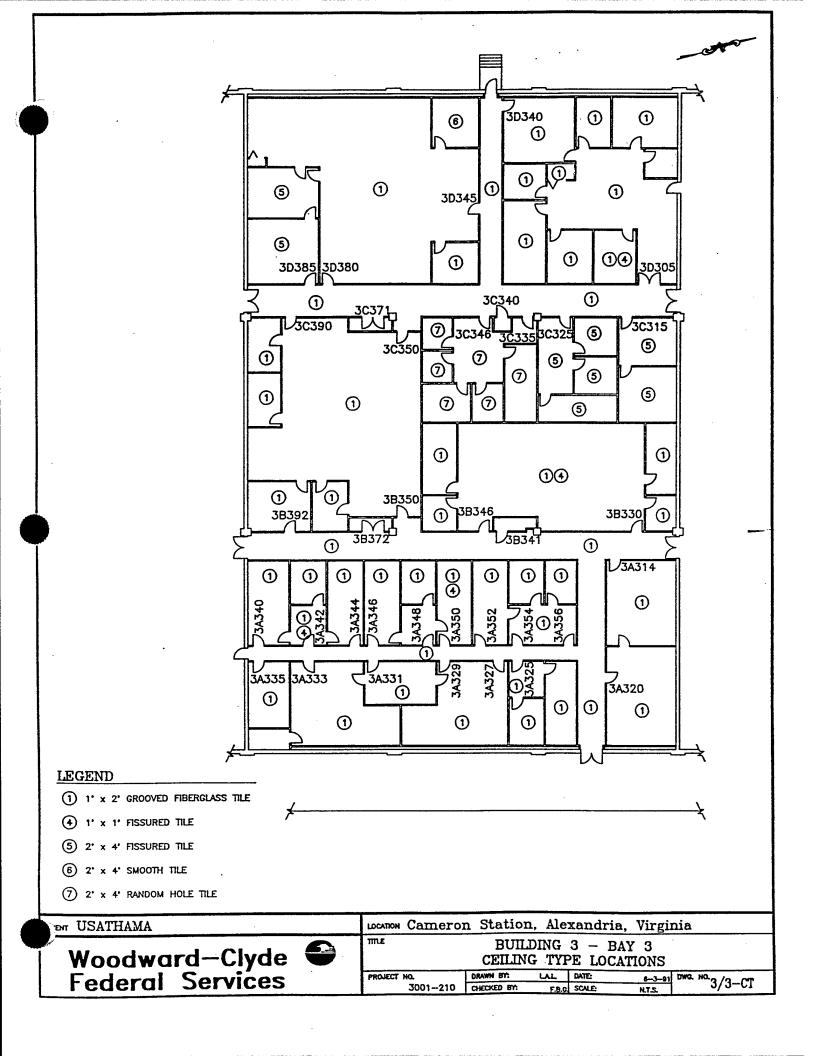


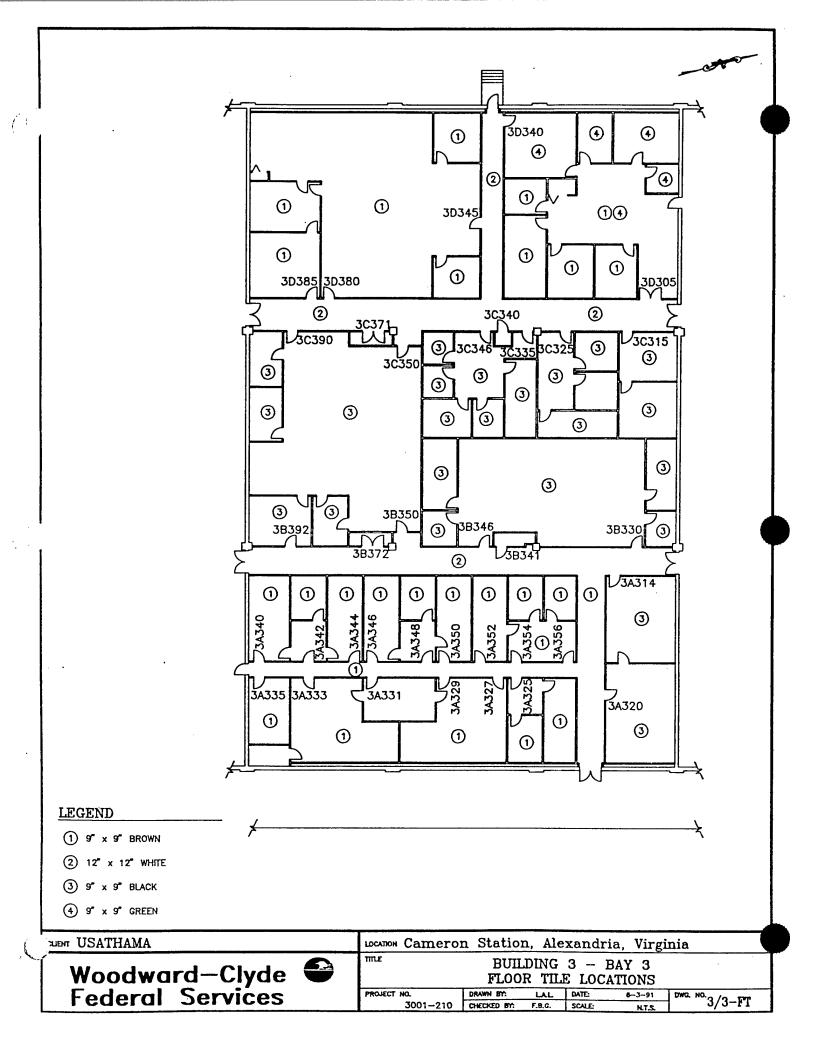


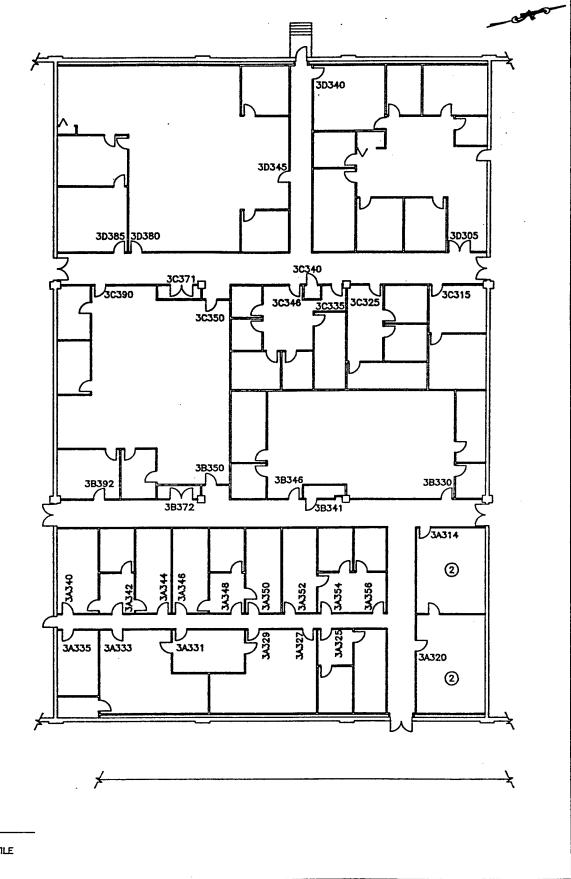


Woodward-Clyde Federal Services 5 F-3-91 DW2 NO. 3/2-WT DRAWN BY: PROJECT NO. DATES CHECKED BY:









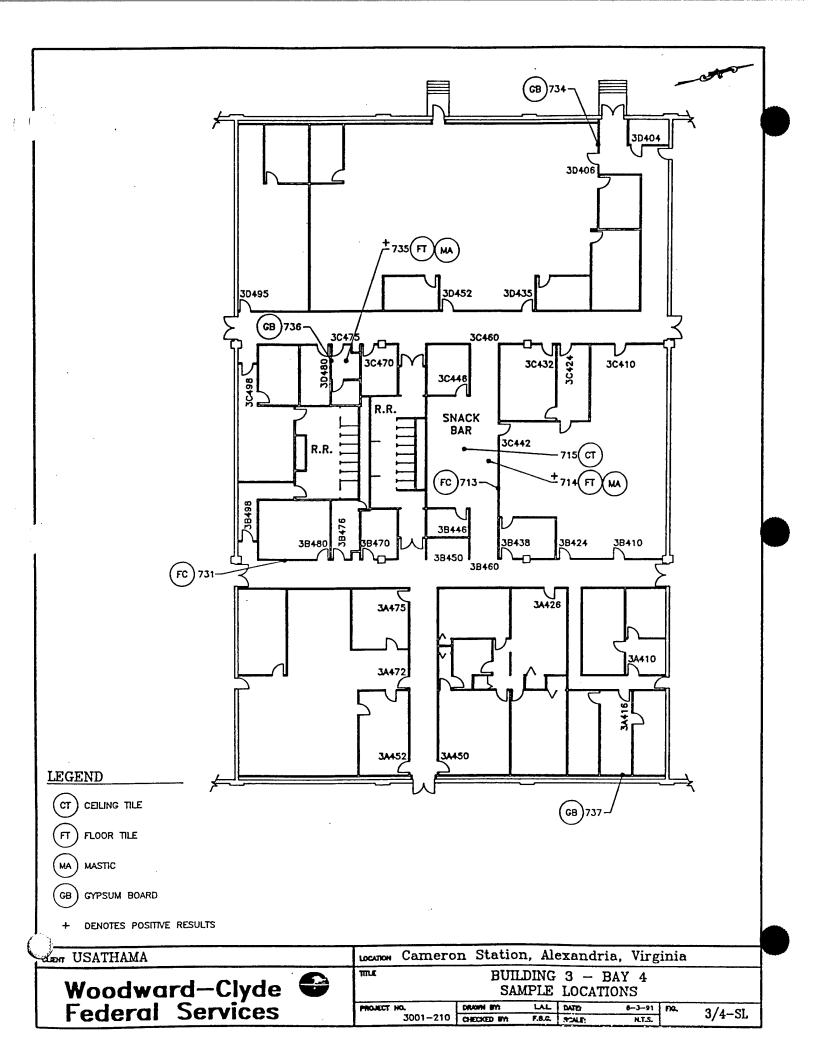
UENT USATHAMA

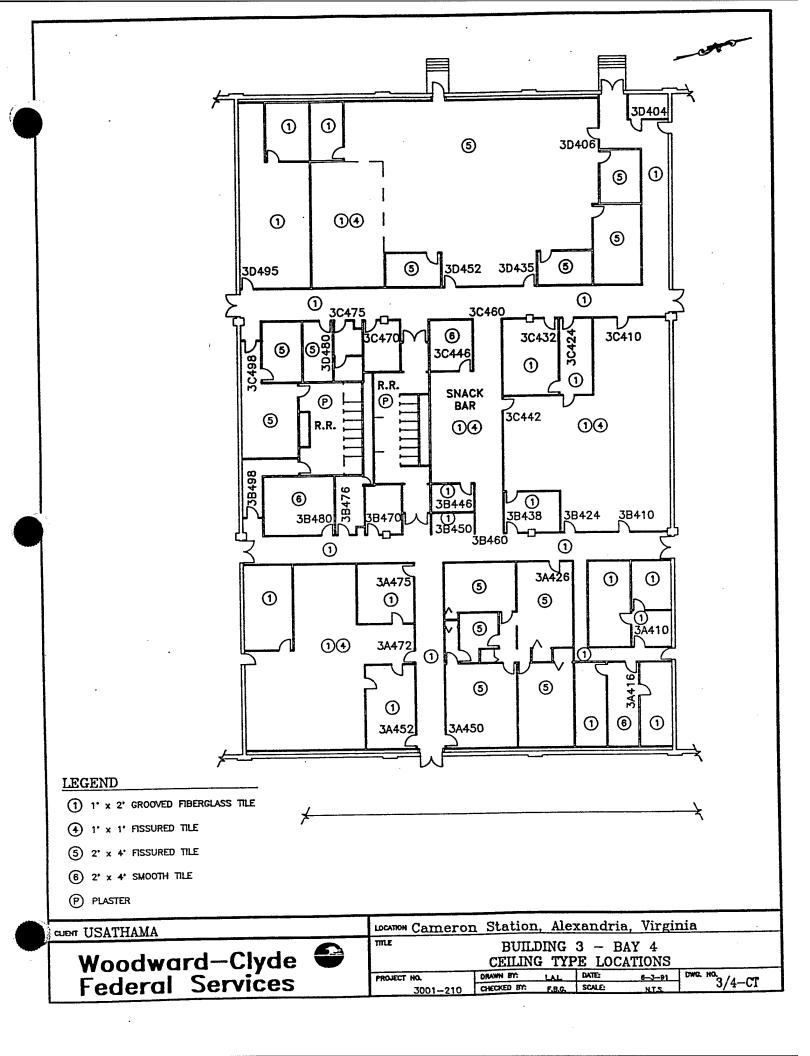
2 1' x 1' FIBERBOARD TILE

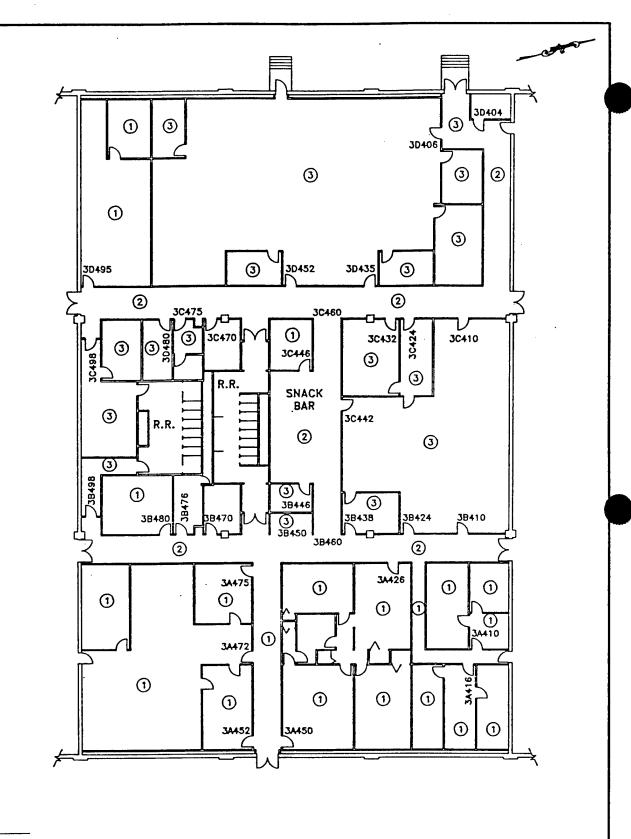
Woodward-Clyde Federal Services

	LOCATION	Cameron	Station,	Alexandria,	Virginia
•	TITLE			NG 3 - BAY	

PROJECT NO. | DRAWN BY: | LAL | DATE: 6-3-91 | DWG. NO. | 3/3-WT

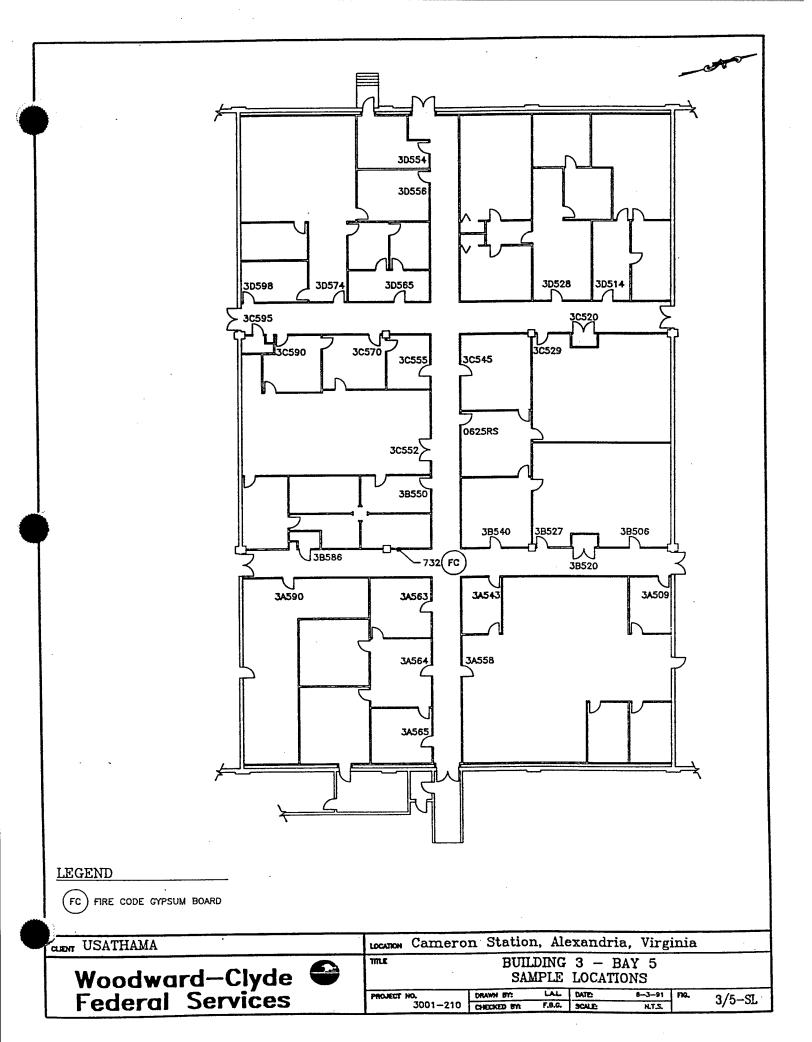


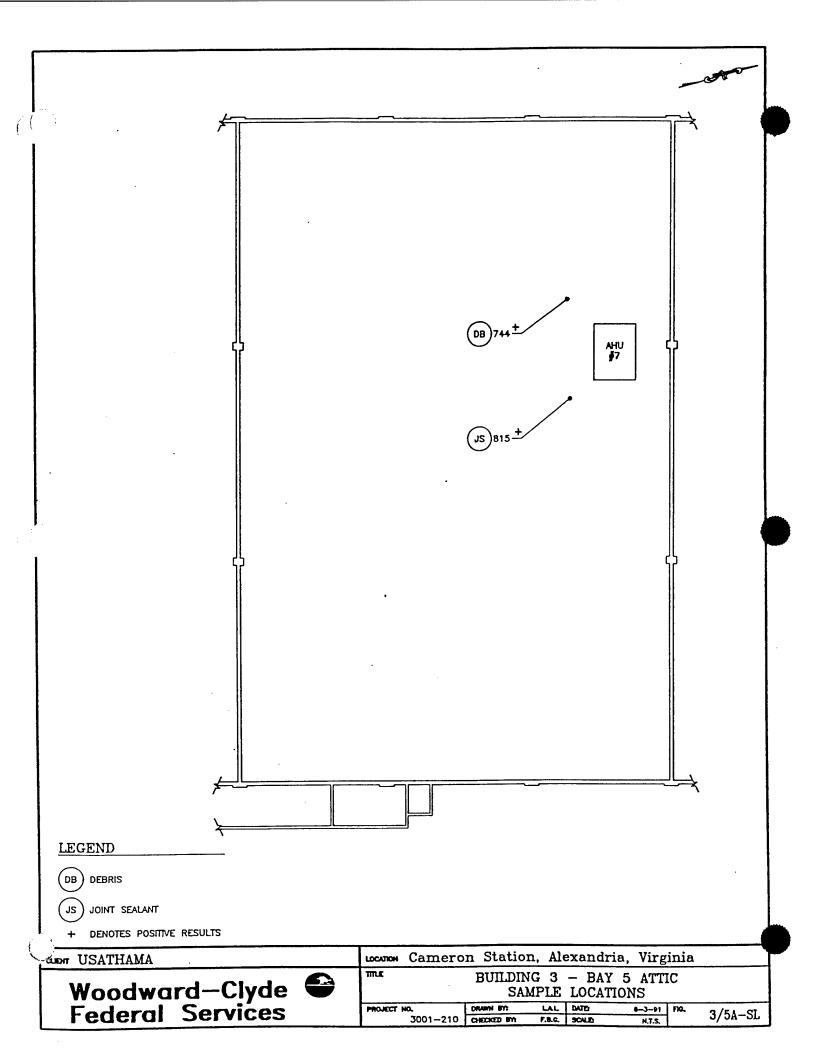


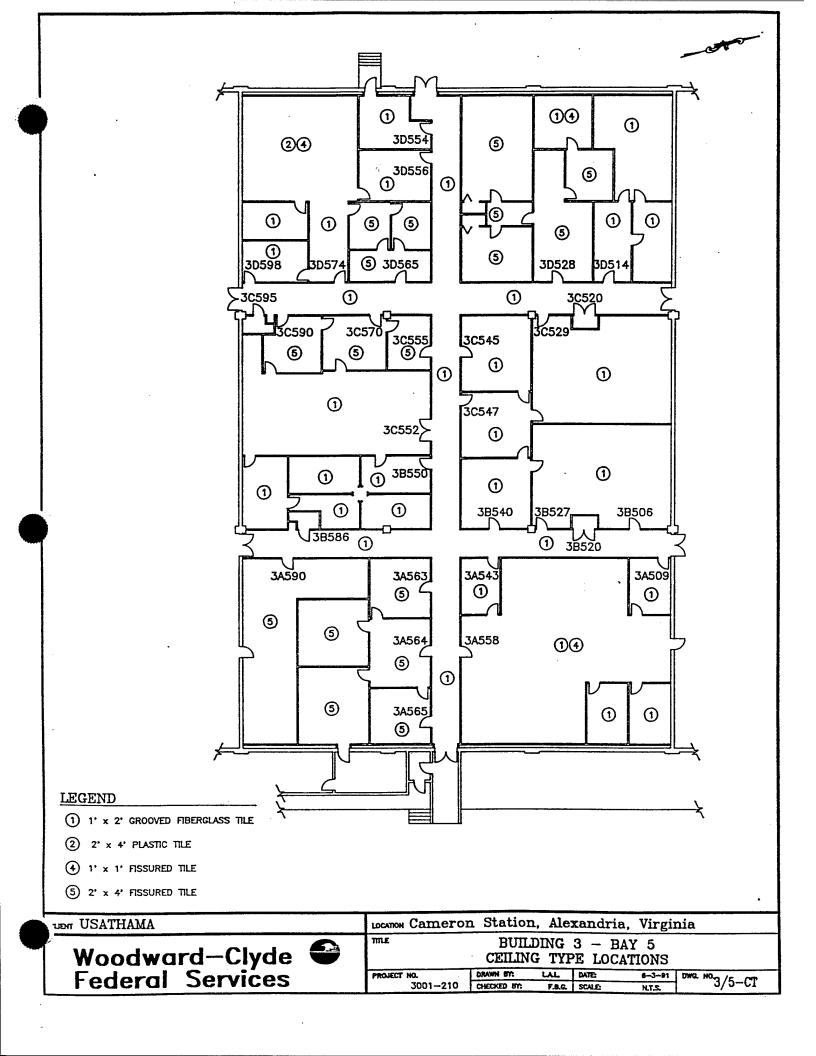


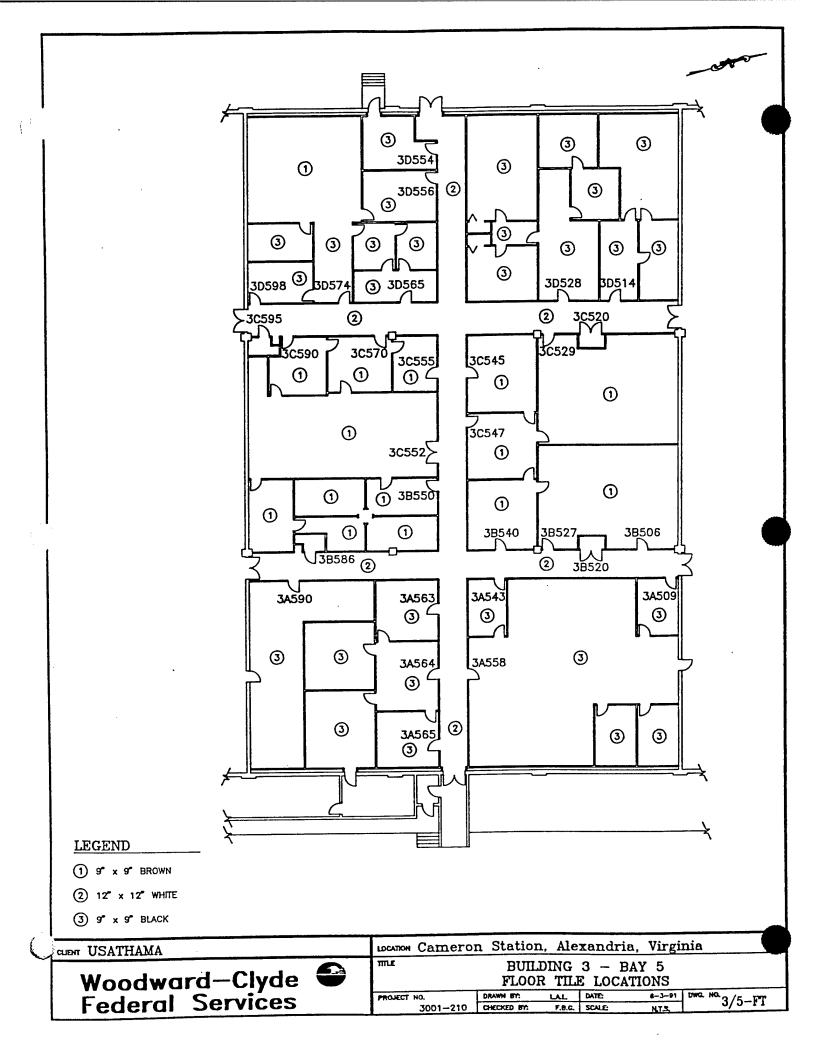
- 1 9 x 9 BROWN
- 2 12" x 12" WHITE
- 3 9" x 9" BLACK

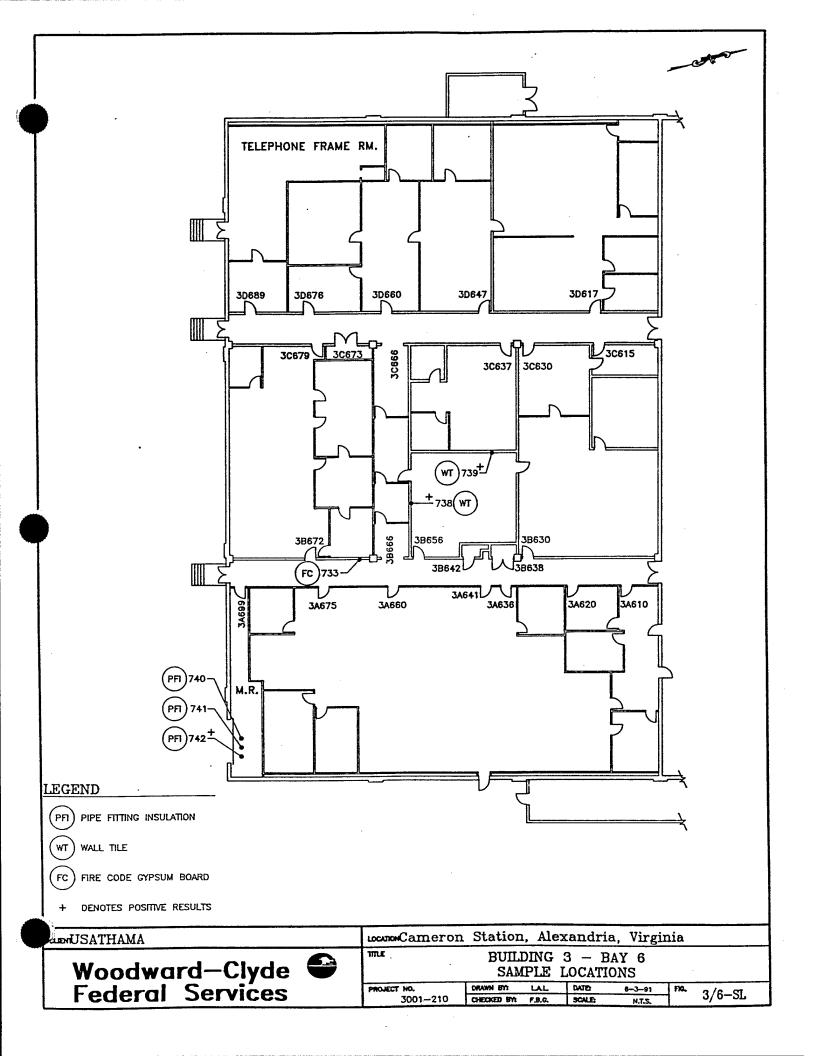
COLEMI USATHAMA	LOCATION Camero	n Station,	Alexandr	ia, Virgi	nia	
Woodward-Clyde	TITLE		ING 3 — TILE LOC			
Federal Services	PROJECT NO.	Different Div	LAL DATE		no.	3/4-FT
Lenet at Det Arces	3001-210	CHECKED WA	F.B.G. SCALE	N.Y.S.	1	0/ + 11

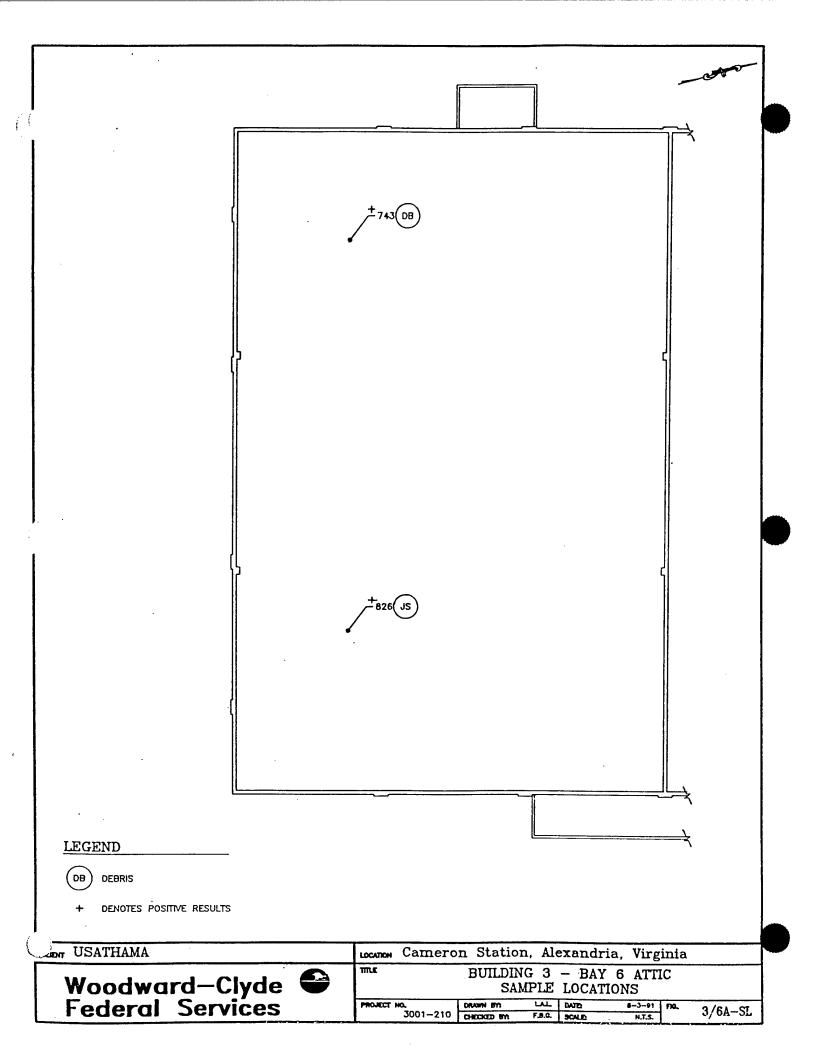


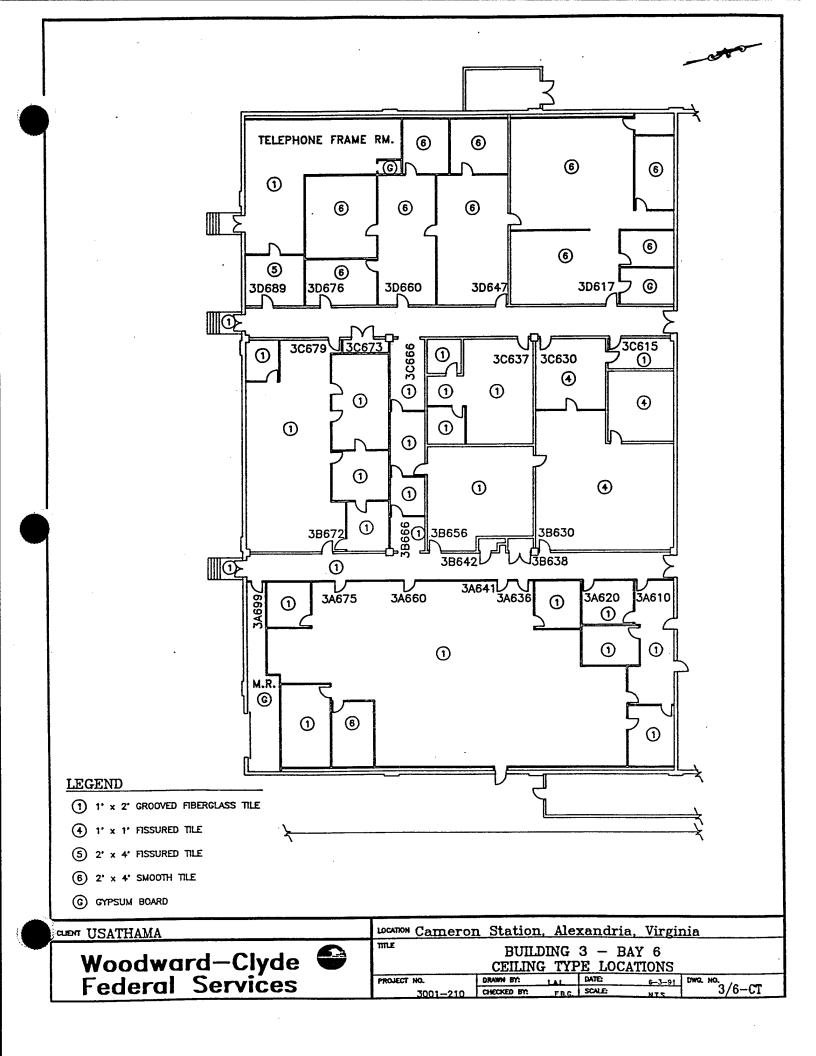


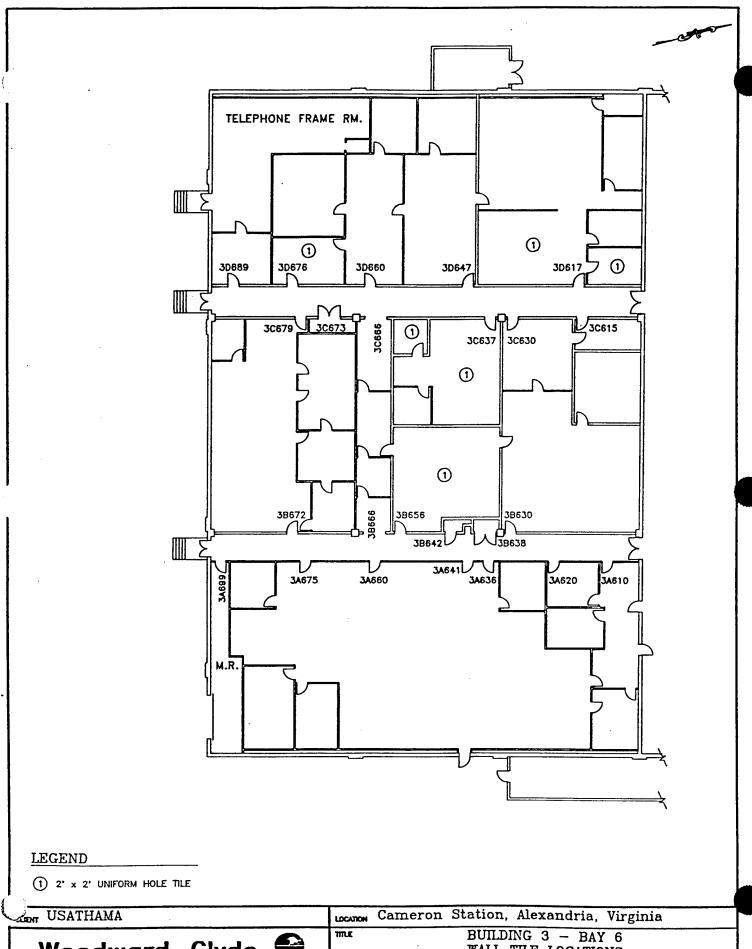






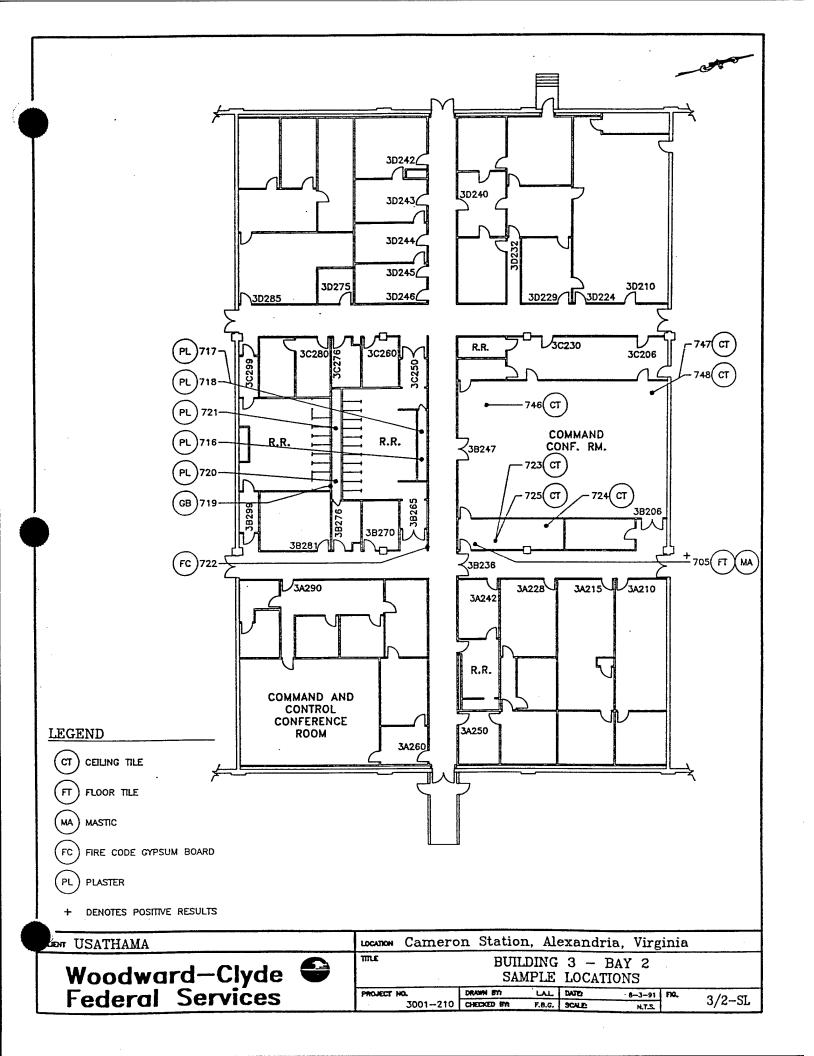


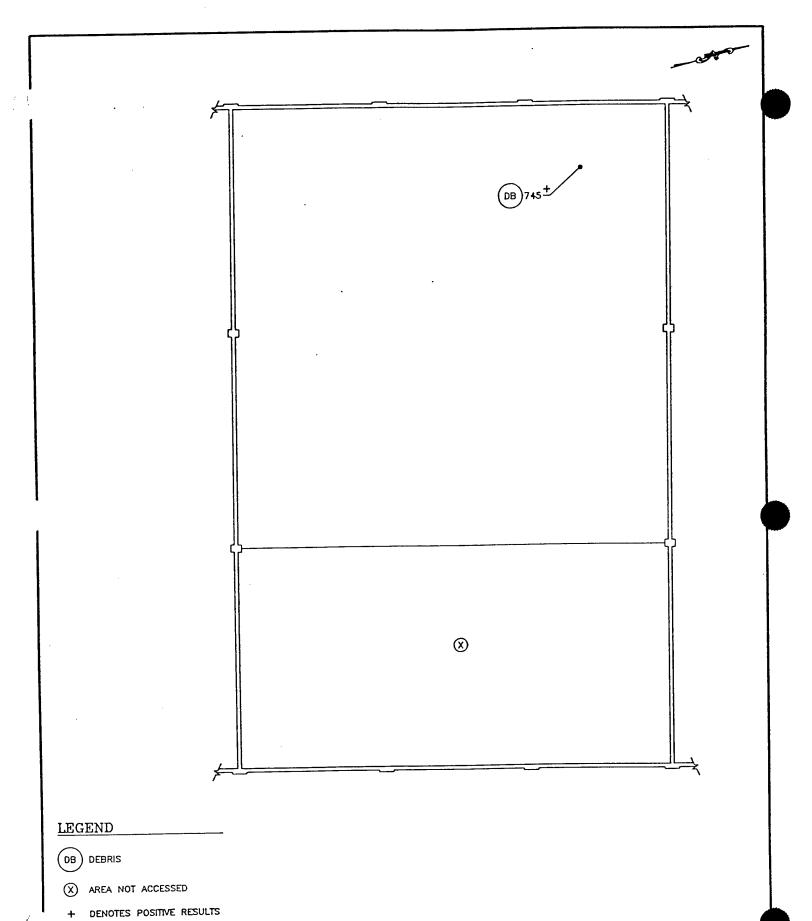




Woodward-Clyde WALL TILE LOCATIONS
Federal Services

| Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Main | Mai





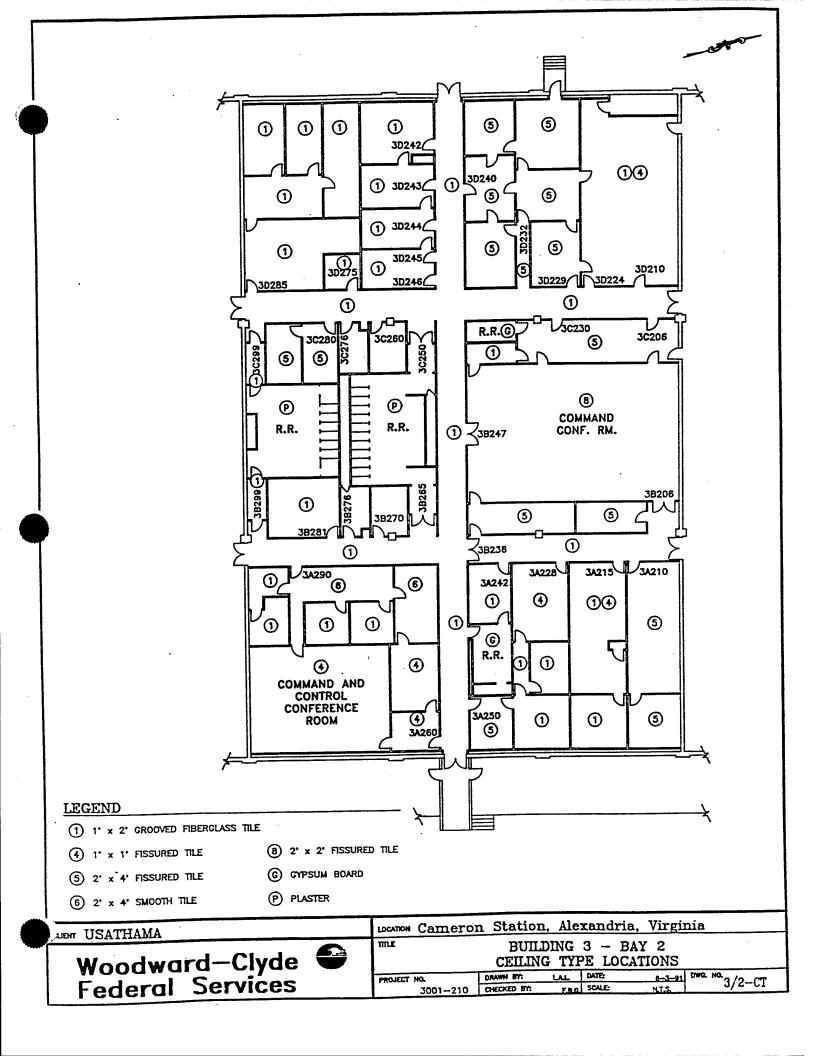
CLENT USATHAMA

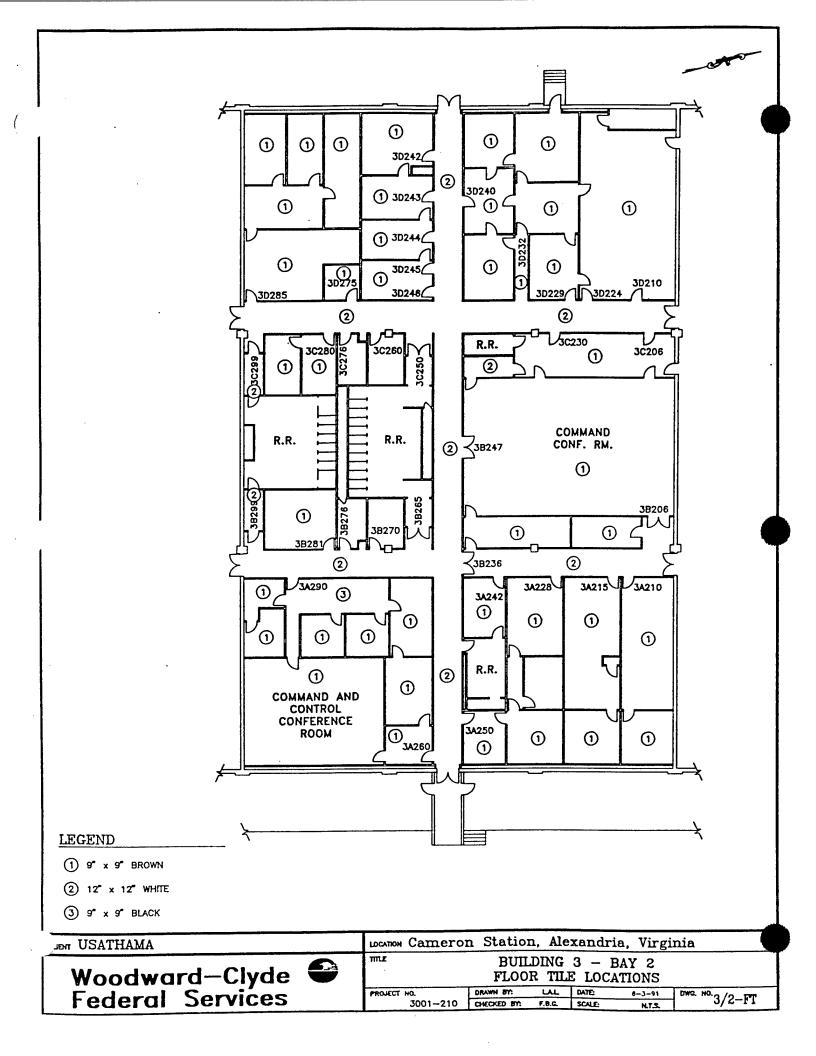
Woodward-Clyde Federal Services

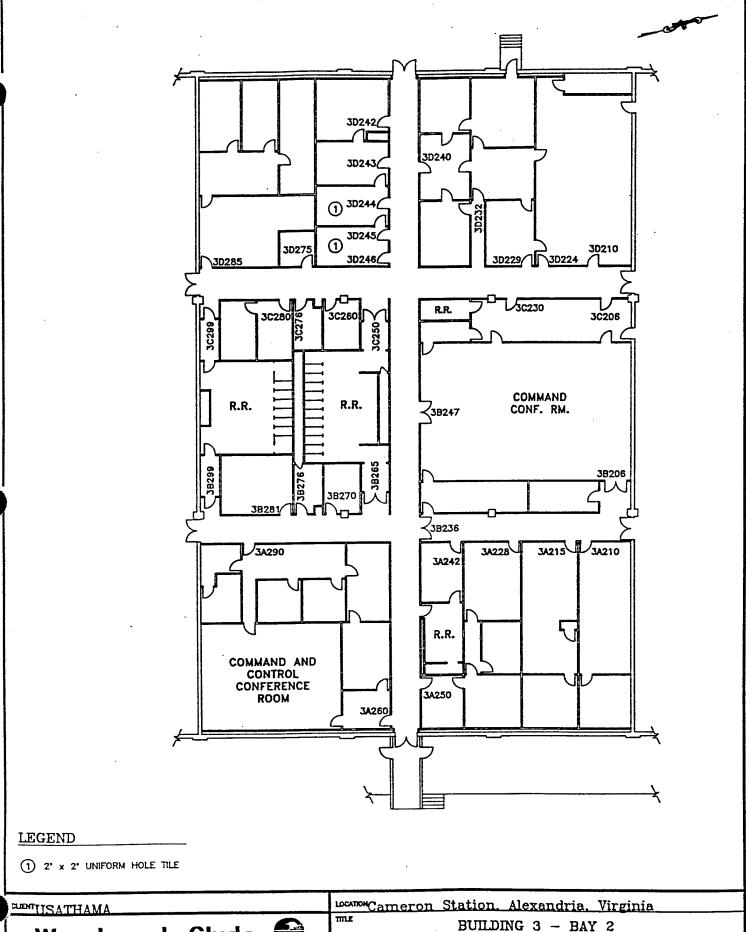


LOCATION	Cameron	Station,	Ale	exandria,	virginia
TITLE]	BUILDING	3	- BAY 2	ATTIC
		SAMP	I.F.	LOCATION	ď

PROJECT NO.	DRAWN BYS	LAL DU	6-3-91	FIG.	3/2A-SL
	CHECKED BY	F.B.G. 30	LE N.T.S.	1	J/ LA JI

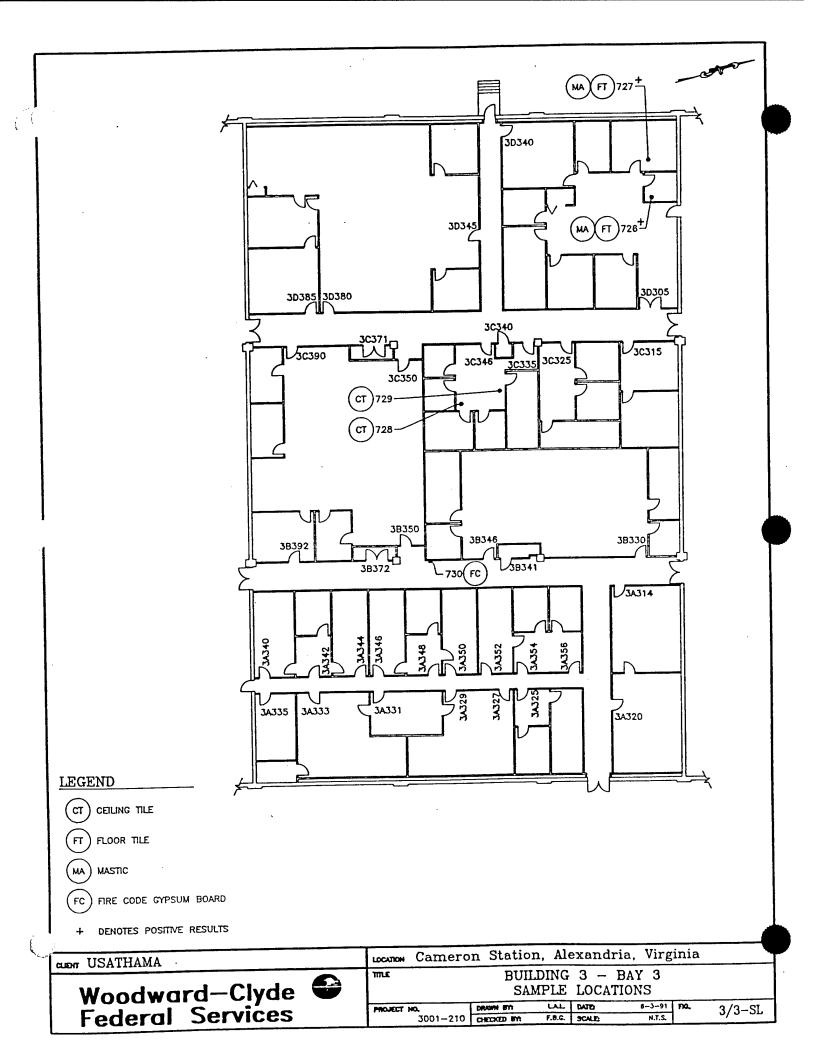


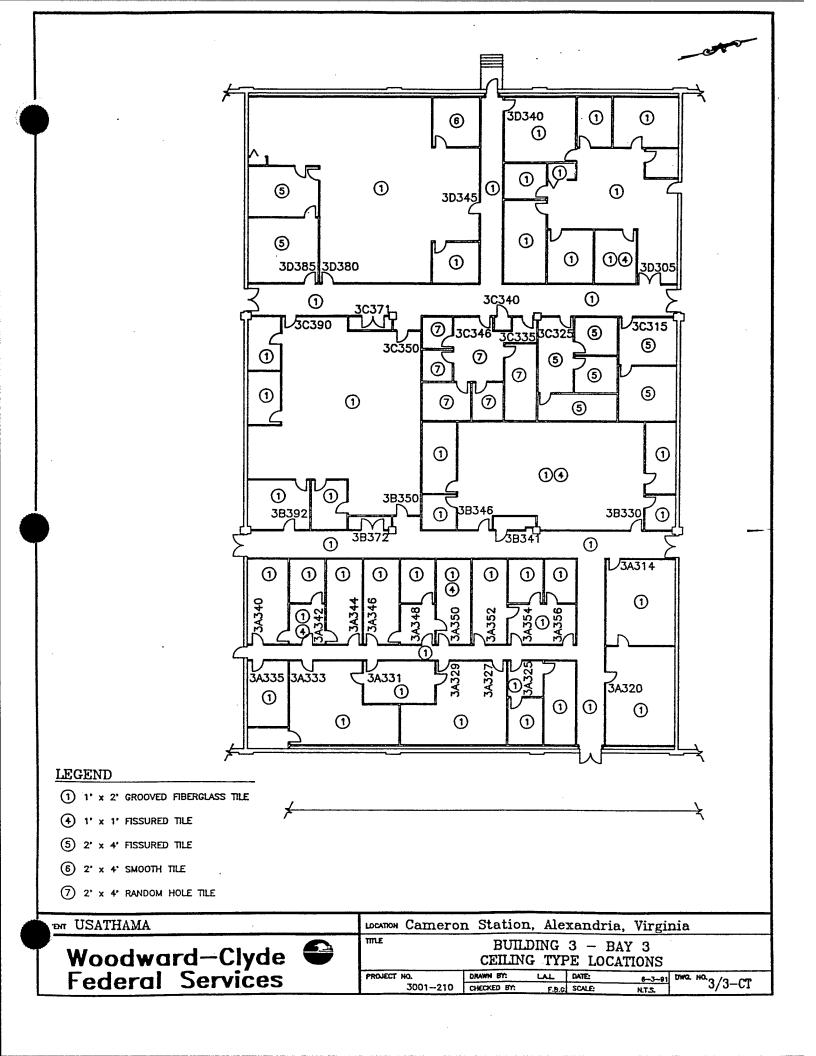


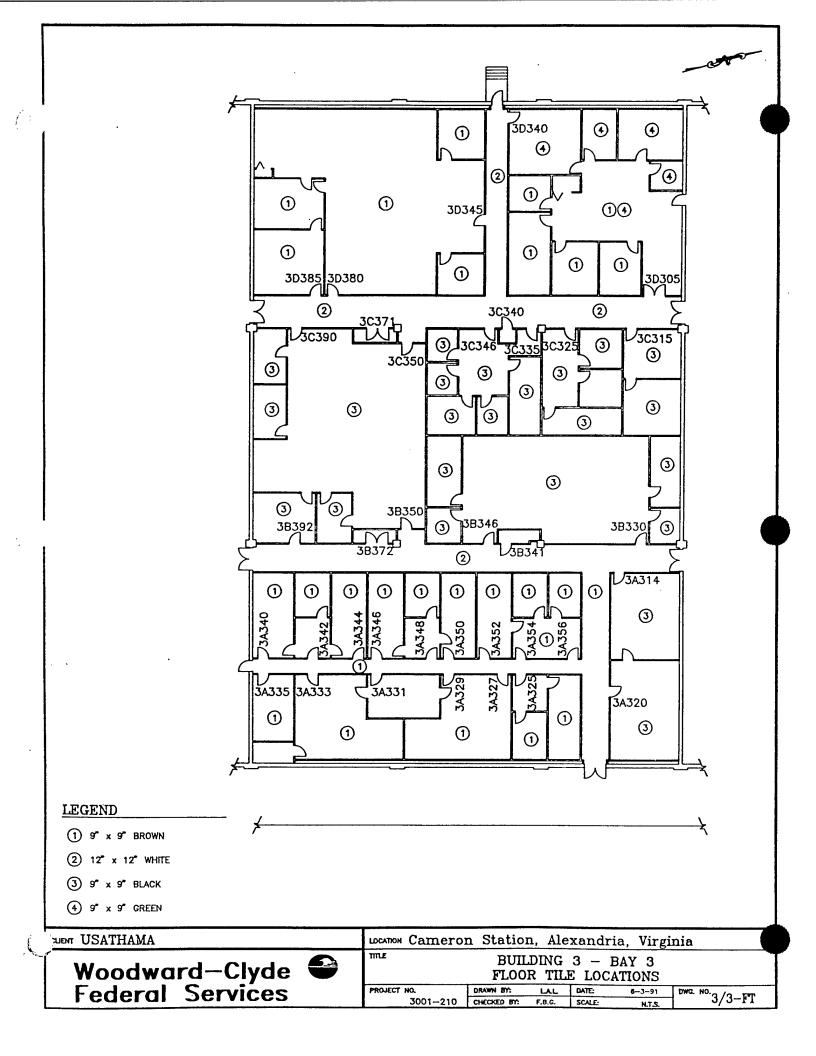


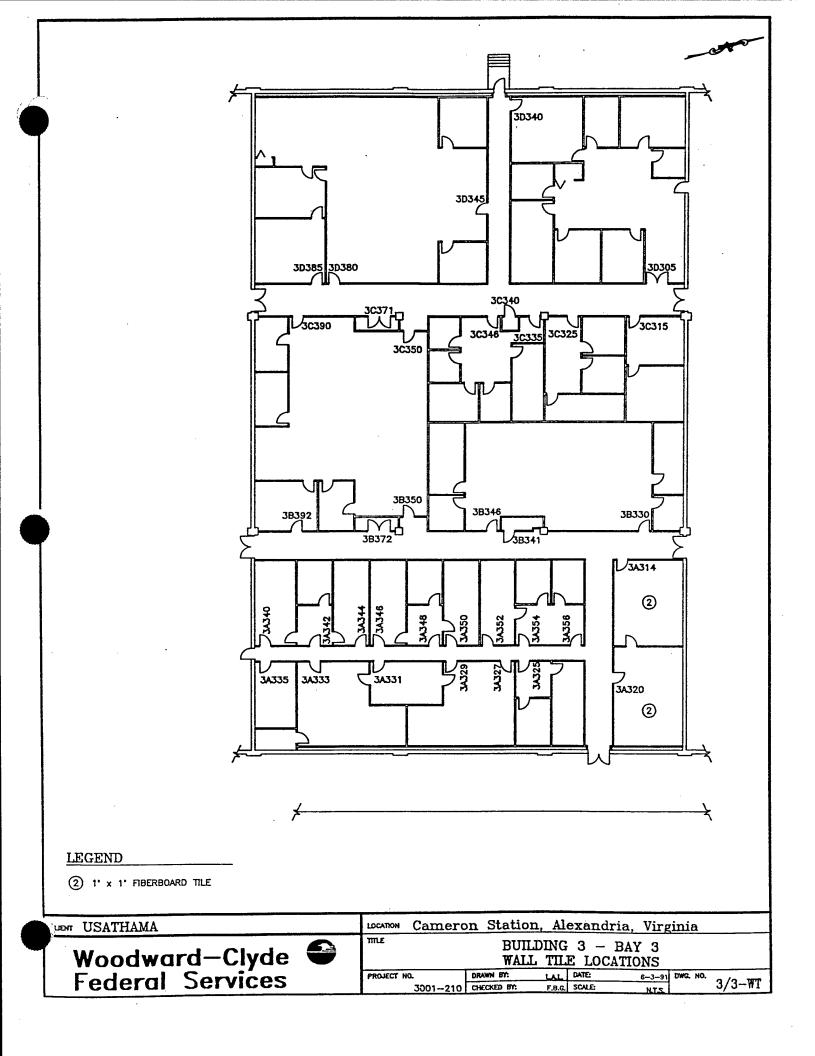
Woodward-Clyde Froderices

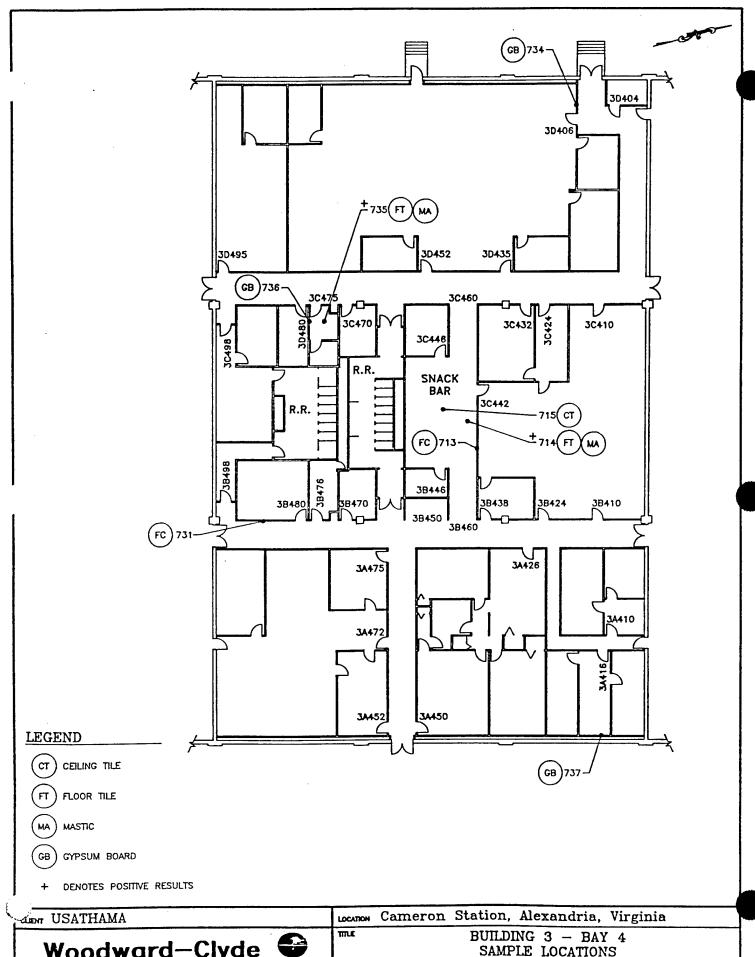
BUILDING 3 - BAY 2
WALL TILE LOCATIONS
PROJECT NO. DRAWN 57: LAL DATE: F-3-91 DWG. NO. 3/2-WT



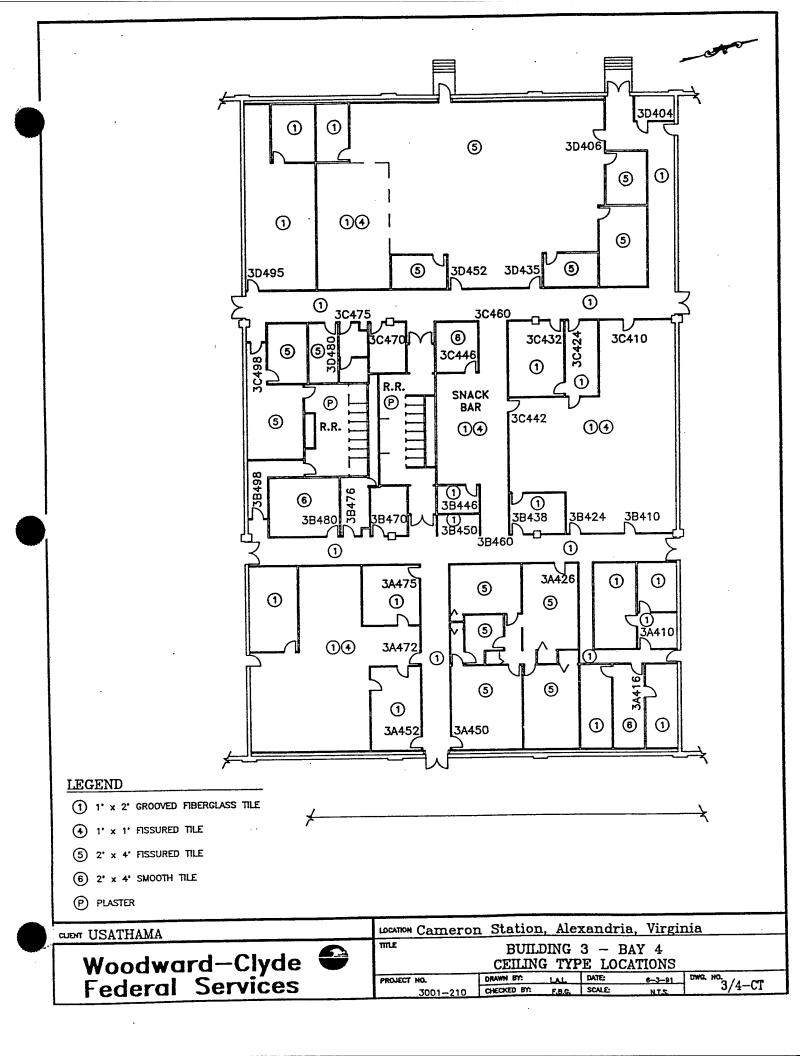


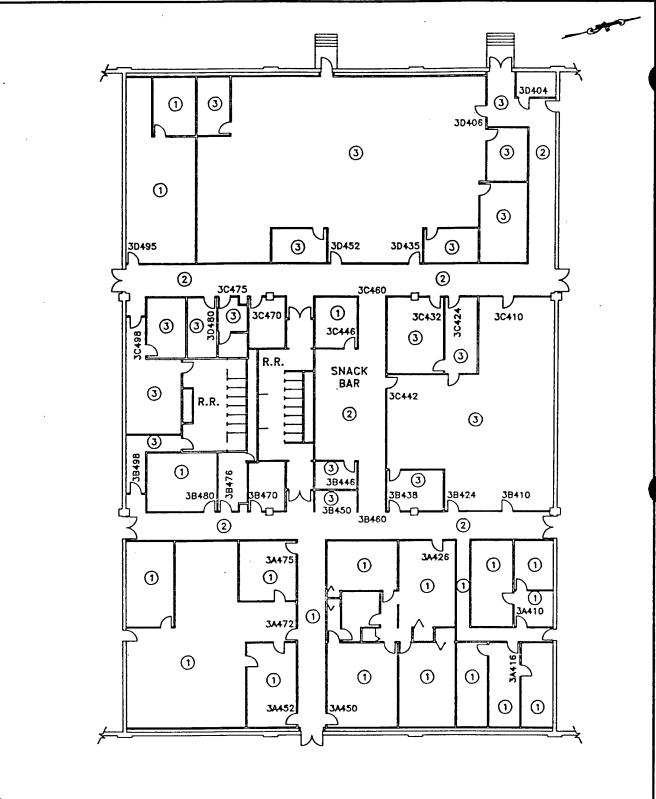






Woodward-Clyde Federal Services SAMPLE LOCATIONS PROJECT NO. UNAME CHECKED BY LAL DATO 3/4-SL

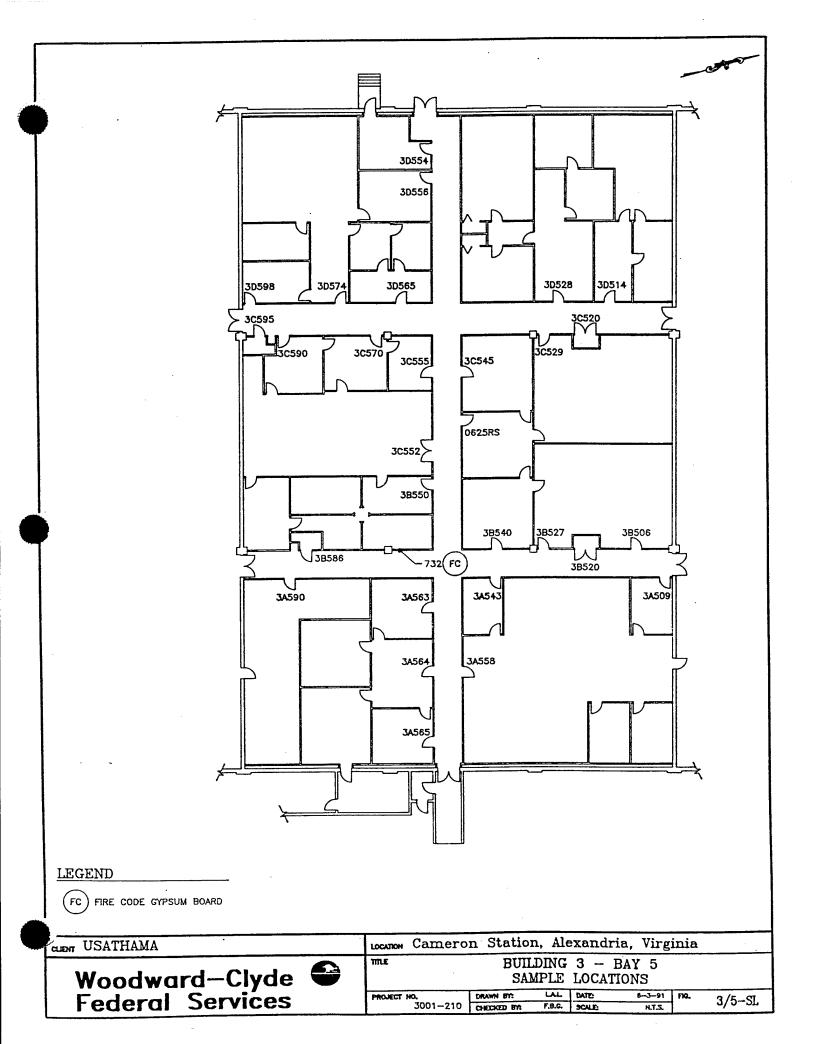


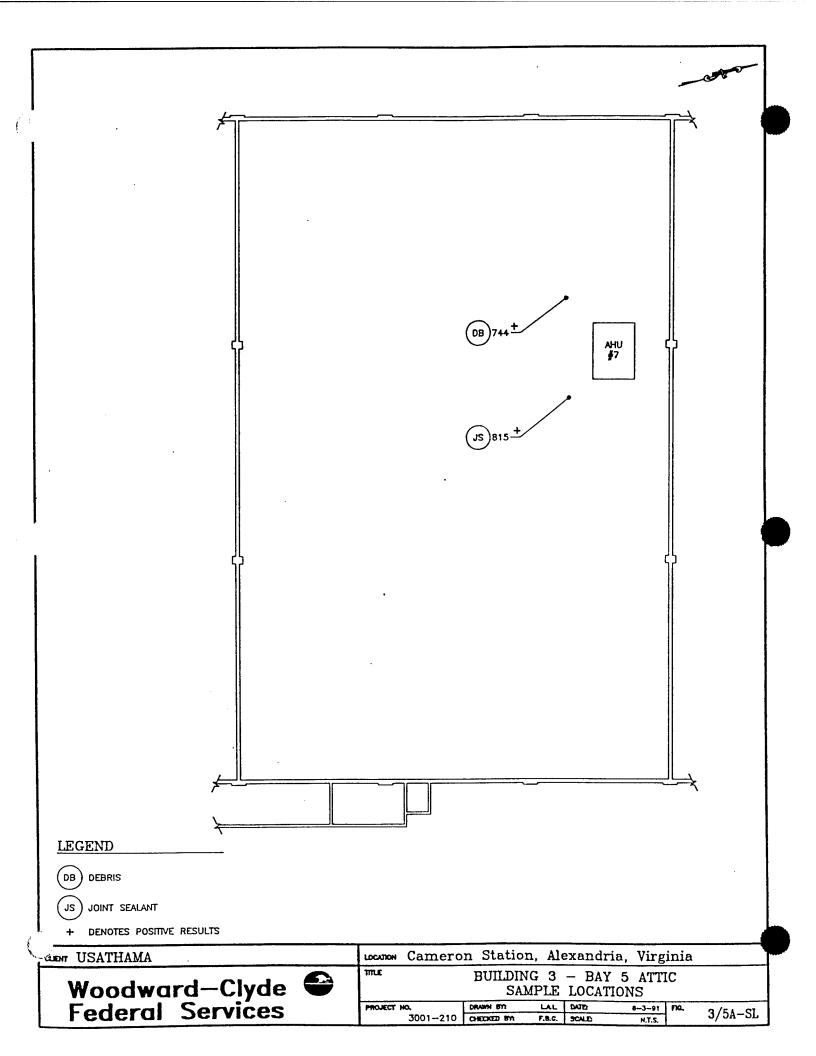


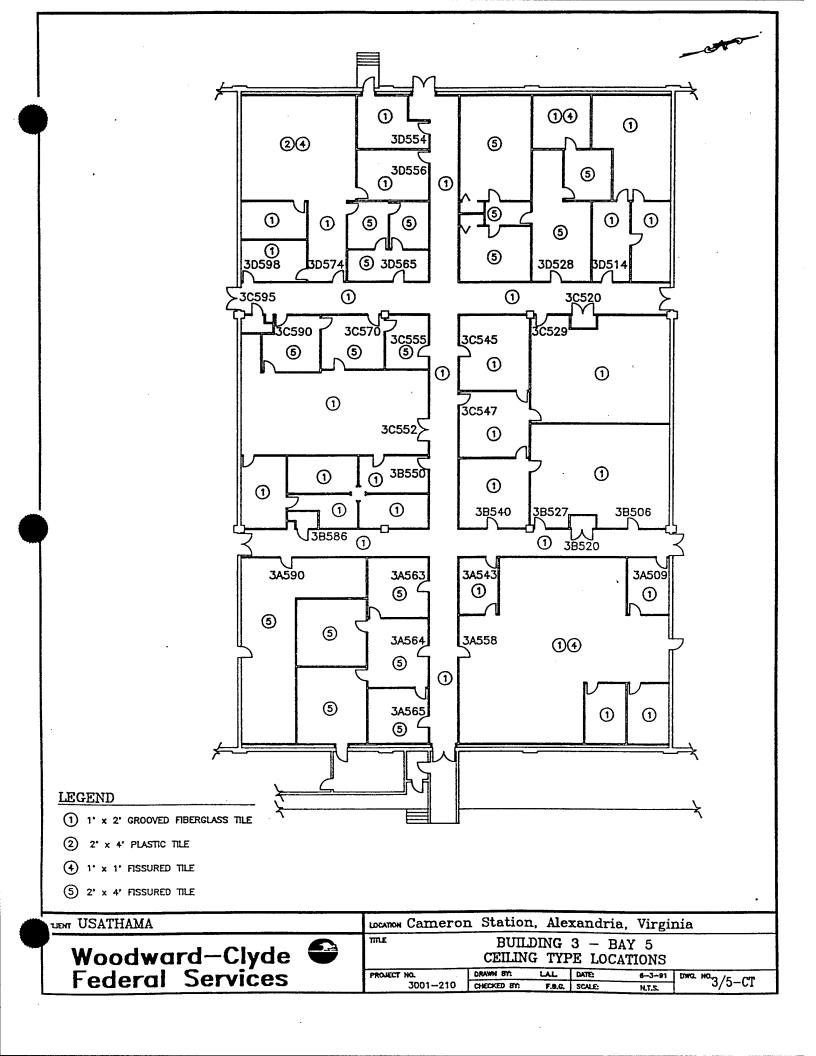
LEGEND

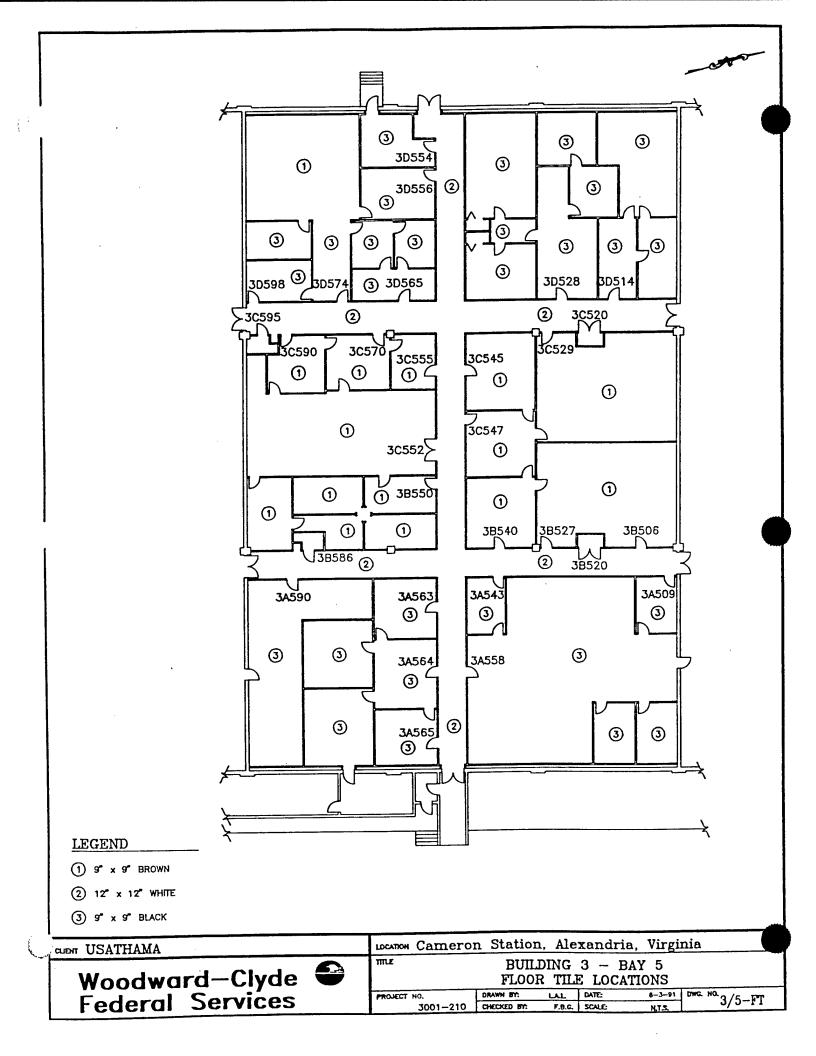
- 1 9" x 9" BROWN
- (2) 12" x 12" WHITE
- (3) 9" x 9" BLACK

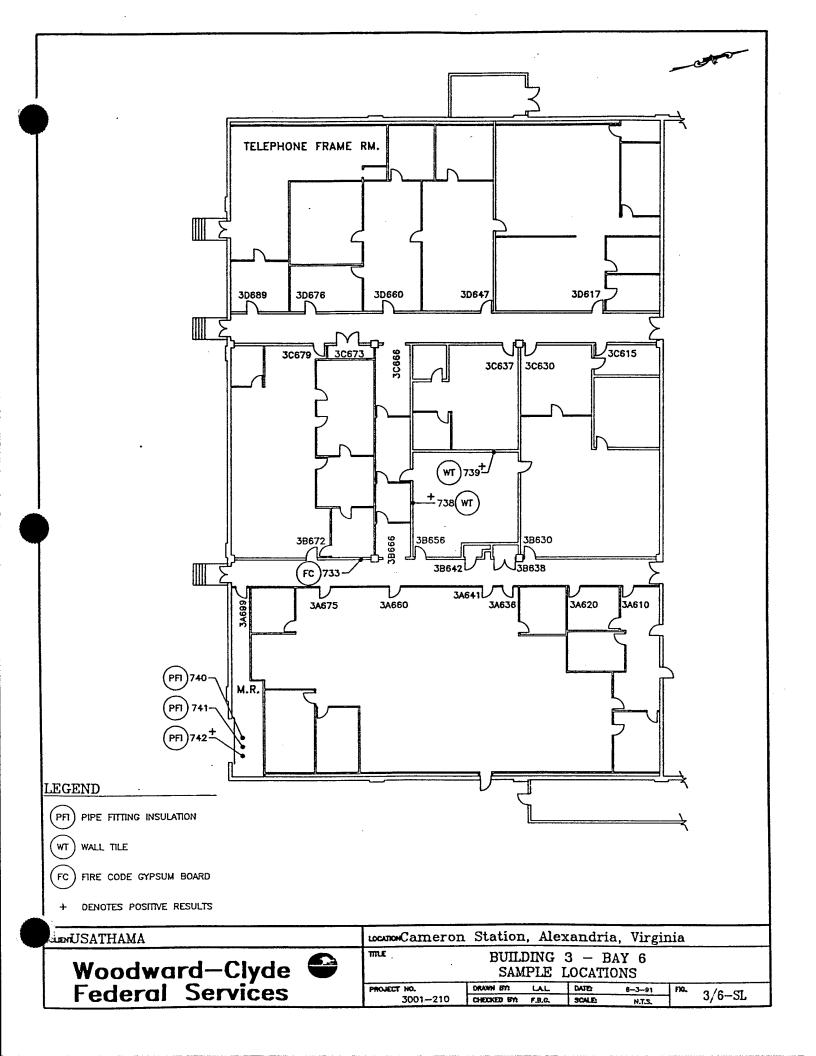
CALENT USATHAMA	LOCATION Camero	n Statio	n, Alexand	ria, Virg	inia	
Woodward-Clyde	TITLE		DING 3 — R TILE LO			
Federal Services	PROJECT NO. 3001-210	CHECKED IN	F.B.G. SCALE:	6-3-91 2.1.4	na.	3/4-FT

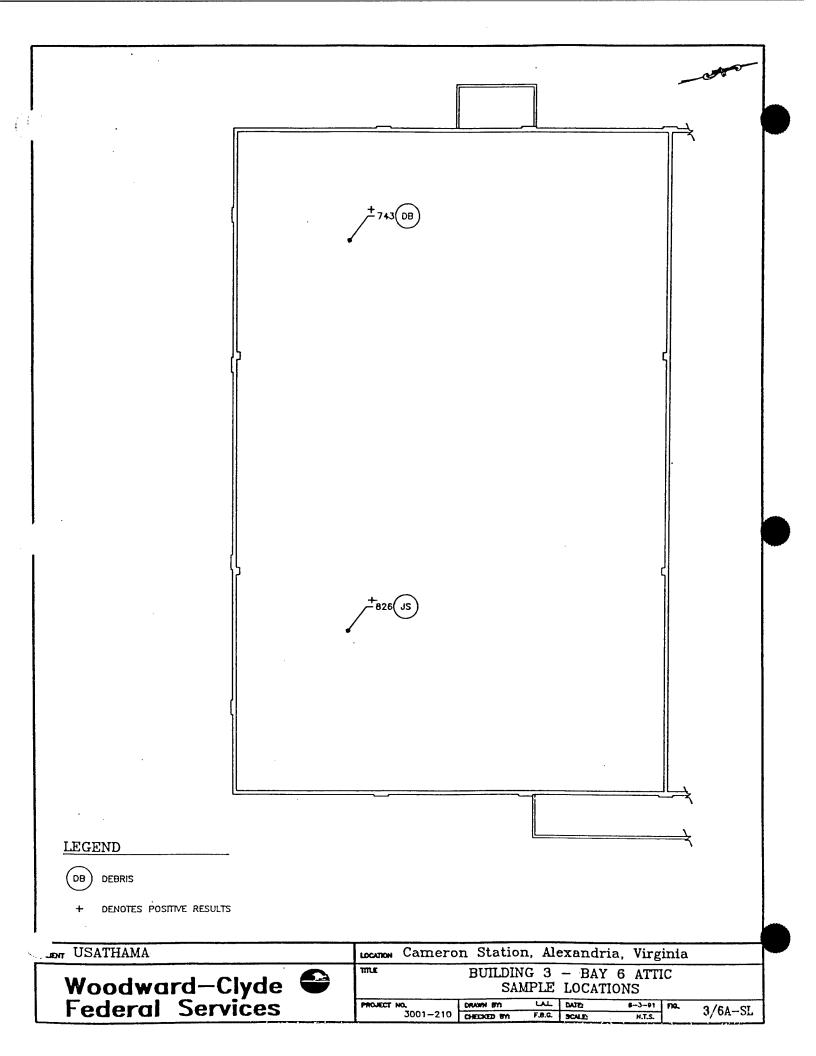


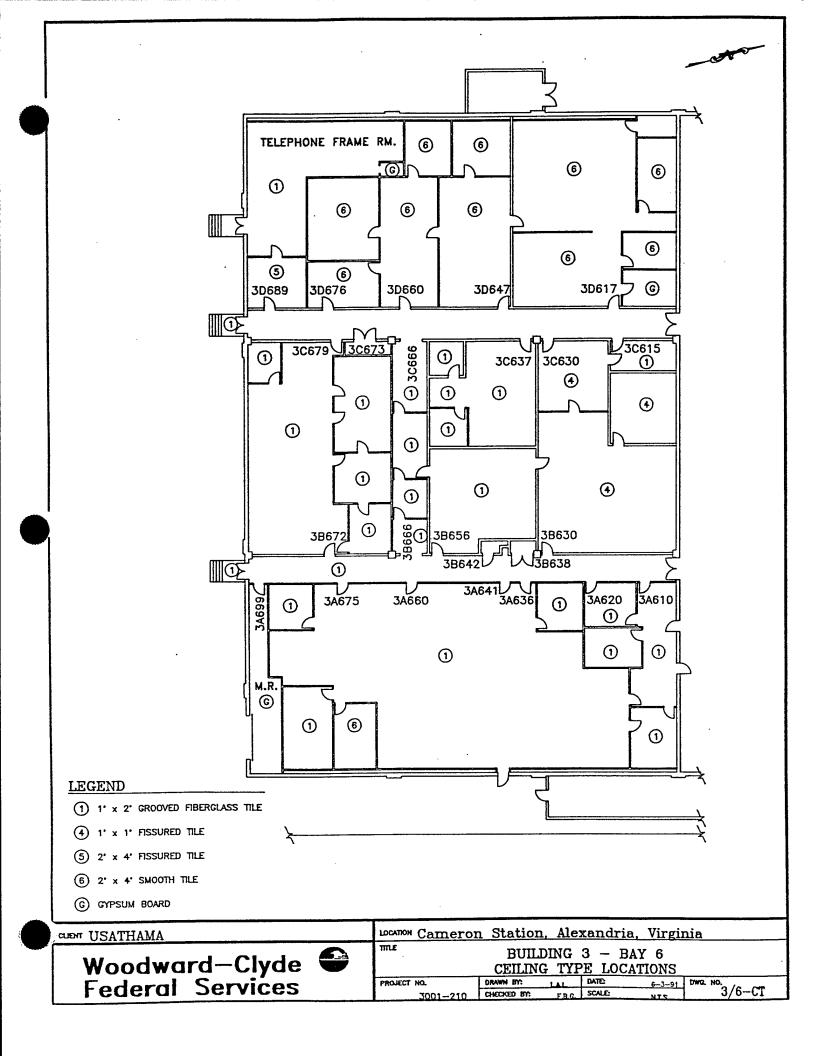


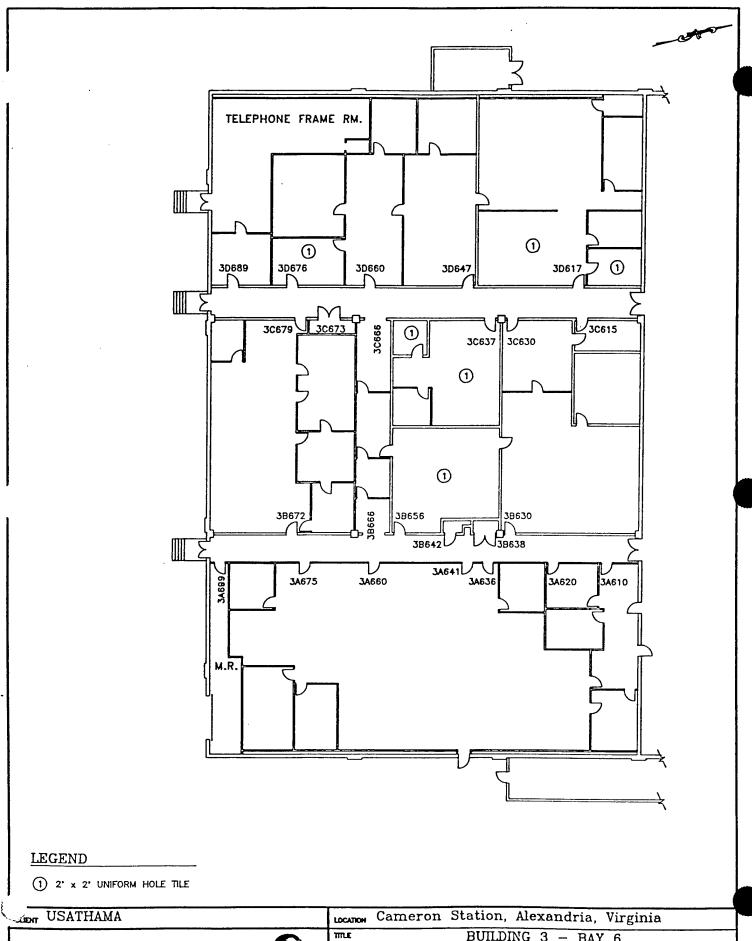












Woodward-Clyde

WALL TILE LOCATIONS

FROMECT NO. SOO1-210 CHEEKED BY F.B.C. SCALE: N.T.S. 104

BUILDING 3 - BAY 6
WALL TILE LOCATIONS

FROMECT NO. SOOLE: N.T.S. 104

3/6-WT

APPENDIX 3-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Station				Walkthrough Survey I Sheet 1 of 4
Building eta		EXTERIOR	IOR	Inspector Date Guardia
•				06/9/2/
Exterior Siding				
Masonry Q Steel/Al	Steel/Aluminum	Mood □	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	Soffit	П		
Sample Y (N)	Condition	F P	Quantity SF	
Roof Shingle (asphalt/fiberglass) □	Les. Tar & Felt F	Assmrw ACM Steel Panel □	Fiberglass Panel	Other
Sample Y (N)	Condition G	Я., Н	Quantity /31, 570 SF	
Exterior Mechanical Systems	<u>Sample</u>	Condition	Quantity	Location
Vent pipe 卤	Y (N)	G F		
Chimney)×(G F P		
Louvers A	V N	GFP		
A/C Units	N N	GFP		
Other	Z	G F P		
		S	STRUCTURAL	
		1	1	
Wood Joists/Beams D	Steel Joists/Beams #	Wood Columns K	Steel Column 2	Concrete Column [4]
Sample Y (N)	Condition G	Я	Quantity SF	
Sample Y N	Condition G	я Р	Quantity SF	
Firewalls - Steel	Masonry (Firedoor	
Sample Y K	Condition	F P	Quantity SF	
				Woodward-Clyde Federal Services

November 16, 1990

INTERIOR - CEILING/WALLS/FLOORS/MISC.

 ω

Building			Inspector/Date:	ate:	
Material*	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity
Gypsum, band FC		Halluag & enhances	X	5	7110000
//.					
Granim Good Rec		In terus walk:	> .	′,	> 130, and
	·	throw it out	/		
		alor culmo			
		in custodial clists			
		g nopromo		"	
		-			
Darker		Robosnio	X	//	5000
Plos fr		Buchtown	/	"	5000
			,		
			·		
					·

*Material	Ceiling			Plaster	Other
*	Ŭ				

Walls Gypboard/Drywall Plaster Other

Sheet Carpet only Concrete Floors 9x9 tile 12x12 tile

Woodward-Clyde Federal Services

APPENDIX 3-E LABORATORY CERTIFICATE OF ANALYSIS

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W

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 3
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 03/11/91
Date Analyzed : 03/19/91

Person Submitting: D. Barnes

MICROSCOPY LIGHT POLARIZED <u>μ</u> SUMMARY

		COMMENT																	
	ANALYST	**QI	S.	A.S	D F	2	SS.	S 8	A.S	AS	AS	} ;	2	2	A.S	AS	AS	ě	ą
		PARTICULATE	30-40	30-40	90	CR-OA	30-40	30-40	90-95	90-95	30-40) i	GR-08	65-70	95-99	75-80	75-80		08-67
N. 4/		OTHER	!	1			!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	1	1	1			1 1 1		₽		1		1
S MATERI	MINERAL FIBROUS ORGANIC	FIBERS	30-35	20-25		02-50	25-30	30-35	7	₽	35.05			30-35	₽	20-25	20-25		20-25
R FIBROU	PIBROUS	GLASS	!	1	•	₹	1	1	1	1					1	1	1		1
/ OTHER FIBROUS MATERIAL &/	MINERAL	WOOL	30-35	40-45	:	1 1 1	35-40	30-35	1	1	30.00	20-23	1	1	1	1	1		1
/	TREMO- ACTIN- ANTHOP-	HYLLITE	!		 		1	1	1	1		1	1	1	1 1 1	1			1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ACTIN-	OLITE				1	1	1	3	1		1	1		}	1			1
* SO	TREMO-					1	1	!	1	1		† ! !	1		1				1
- ASBEST	CROCIDO-	LITE	1		1 1 1	1		1	1	1		!	1	1	1	1) 	1
		AMOSITE			1	!	1	1	1	1		1		1 1 3	1	!		1	1
//	-Osvano	TILE			1	1	1	1 1 1	05-10	01.10	1	}	05-10	1	01-05			1	1
	DCHOOL OF	PRESENT*	;	z,	z	z	×	: 2	. ρ	• F	14	×	Д	z	ρ	. 2	5	z,	×
		AMPLE		200	701	702	703	20.4	, c	2 6	8	707	108	406	2.7	3 ;	;	712	713

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity mates. Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and iness collected by personnel of these mater without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

in our regard and the entitlest Arcredited Laboratory



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001

m ••

Bldg #

Person Submitting: D. Barnes 1 03/11/91 19/11/91 Date Analyzed Date Sampled

MICROSCOPY LIGHT POLARIZED E O SUMMARY

COMMENT					-									
ANALYST ID**	УВ	88	S.	ş	3/3	A8	53	88	æ	S 2	A 8	SZ.	AS	3 8
PARTICULATE	95-99	30-40	100	100	100	75-80	100	100	75-80	30-40	30-40	30-40	95-99	90-95
AL A/		!			•	1			!	t ; ;	1	1	1	***************************************
S MATERI ORGANIC PIBERS		30-35	!		3	20-25	;	}	20-25	30-35	30-35	30-35		
FIBROUS FIBROUS GLASS		1			1	!	!	!	!	1	1		1	1
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	1 1 1 3	30-35	•	!	;		1		1	30-35	30-35	30-35	1	:
CENTRO- CENTRO- TREMO- ACTIN- ANTHOR-	1	-	1 1 1	1	1 1 1	!	į	1	1 1 1 1	1	-	1	1	1
ACTIN- OLITE		1	1	-		1						1		
JREMO- LITE		1	1	!	1	1	!		1	!	1	1		
ASBESTY CROCIDO- LITE			!	1	!		1	1		1	1	1		
AMOSITE	;	!	1	1	1	Ì	1	1	1	;	1		1	
CERYSO- TILE A	01-05	1	1			!	1	1	1	-	}		01-05	05-10
ASBESTOS PRESENT*	Α	z	×	z	z	z	×	×	z	z	z	z	ρι	p.
SAMPLE	714	715	716	717	718	719	720	721	722	723	724	725	726	727

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

COMMENTS: * P - ASBESTOS PRESENT

This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.







or editive (weign) and EN test (#114.) Avcordited Laboratory



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

: 03/11/91 : 03/19/91 Date Analyzed Date Sampled

Person Submitting: D. Barnes Job Site : Cameron Station Job Number: 3001 ო •• Bldg

MICROSCOPY LIGHT POLARIZED **H**0 SUMMARY

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COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter Laboratories, this report is submitting them and, unless collected by personnel of these mater without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

1

AMA Analytical Services, Inc.

So, Subsidiated (#114) Accepted Laboratory

Rockville, MD 20850 Attn: Sally Gaurdia

Woodward-Clyde Federal Services 1 Church St. Suite 404

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001 Bldg #

Person Submitting: D. Barnes : 03/11/91 1 03/19/91 Date Analyzed Date Sampled

MICROSCOPY LIGHT POLARIZED 0 H SUMMARY

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** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these theorems, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.







sa estras (#294) and HVLSa (#1143) Accredited Laboratory

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services

1 Church St. Suite 404 20850 Attn: Sally Gaurdia Rockville, MD

: Cameron Station Job Number: 3001 Job Site Bldg #

: 03/11/91 : 03/19/91 Date Analyzed Date Sampled

Person Submitting: D. Barnes

MICROSCOPY LIGHT POLARIZED E O SUMMARY

ANALYST ##CI 2 PARTICULATE 95-99 /--- OTHER FIBROUS MATERIAL * --/ OTHER MINERAL FIBROUS ORGANIC GLASS FIBERS ğ HYLLITE CROCIDO- TREMO- ACTIN- ANTHOP-OLITE -- ASBESTOS & AMOS ITE ----CHRYSO-01-05 TILE ASBESTOS PRESENT* ρ, SAMPLE 826 H

** ANALYST ID CODE (SEE SIGNATURE)

N - ASBESTOS NOT OBSERVED

P = ASBESTOS PRESENT

COMMENTS:

COMMENT

5 PAGE(S) LAST PAGE OF

Edlk Insulation Samples. Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in

Andreas Saldivar

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter whole protection from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

APPENDIX 3-F SAMPLE CHAIN-OF-CUSTODY FORMS

000 WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

eral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 7 19

Federal Services

Field Office: Woodward-Federal Building 17 Door 2 Cameron Station Alexandria, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyc Federal Services

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Door 2
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Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

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* Federal Services

Field Office: Woodwah
Building 1,
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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WCFS Project No. 3001

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Woodward—Clyde Fe Iral Services CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

lid Office Building 1878

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3001 WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde Jeral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 7 18 19

s Federal Services

Field Office: Woodwal Federal Building 1. Door 2 Cameron Station Alexandria, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyde deral Services

coc By: 1/2 1 9

Field Office: Woodward Building 17 Door 2

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Cameron Station Alexandria, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

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e Federal Services Field Office: Woodwd
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703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

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BUILDING 4

4.1 DESCRIPTION

Building 4 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof, typical of buildings at Cameron Station, is constructed of tar, felt and gravel over wood. The building is divided into six bays by masonry firewalls. Originally designed as a warehouse, it was converted to one floor of offices and attic space more than twenty years ago. Building materials typically found on the main floor include carpet over floor tile, ceiling tile, regular and fire code gypsum board and plaster. The overhead areas house the HVAC system. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

The Defense Logistics Agency is the current occupant of Building 4.

4.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 4-A through 4-F. A summary of this data is presented below.

4.2.1 Suspect Friable ACM

Four homogeneous areas of suspect friable ACM were identified and six bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following four materials:

- Premolded pipe insulation.
- Tank insulation.
- Pipe fitting insulation.
- Debris.

These materials were found in two functional spaces and were assessed as follows:

- Premolded pipe insulation, tank insulation, pipe fitting insulation and debris in the attic areas of Bays 3, 4, 5 and 6. Assessment of these materials indicates a damage factor of 16 and an exposure factor of 22. According to the GAHA Index, these materials rank as Priority B.
- Assessment of the pipe fitting insulation in Room 4B687 indicates a damage factor of 5 and an exposure factor of 13. According to the GAHA Index, these materials rank as Priority C.

4.2.2 Suspect Nonfriable ACM

Fourteen homogeneous areas of suspect nonfriable ACM were identified and fifty-three bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eight materials:

- Joint Sealant in attic areas.
- CT 2 1' x 1' white random hole ceiling tile
- CT 6 2' x 4' white uniform hole ceiling tile
- CT 7 1' x 1' white fissured ceiling tile
- FT 1 12" x 12" white floor tile and mastic
- FT 2
 9" x 9" green floor tile and mastic
- FT 3 9" x 9" gray floor tile and mastic
- FT 4 9" x 9" brown floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

4.2.3 Material Assumed To Contain Asbestos

Two homogenous areas, the tar and felt roofing material and vibration cloth are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

4.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection the following materials originally identified in the walkthrough survey as suspect ACM were examined more closely and reclassified as nonsuspect:

- CT 3 2' x 4' smooth fiberglass ceiling tile
- CT 4 2' x 4' light texture fiberglass ceiling tile
- CT 5 2' x 4' rough texture fiberglass ceiling tile
- FT 5 2' x 2' raised composite floor tile

4.4 AREAS NOT ACCESSED

The following areas in Building 1 were not accessed:

- Room 4B275
- Room 4C473
- Overhead area in Bay 6, northeast corner

4.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
4		18 MF * 8 SF TSI	<10 SF TSI

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

4.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 4-A ACM Survey Results

Appendix 4-B Assessments/Recommendations for Friable ACM

Appendix 4-C Building Drawings

Appendix 4-D Walkthrough Survey Data Sheets

Appendix 4-E Laboratory Certificate of Analysis

Appendix 4-F Sample Chain-of-Custody Forms

APPENDIX 4-A ACM SURVEY RESULTS

ACM Survey Results for Building 4

	Comments			Small amounts of material left on pipes entering AHUs after abatement	Ends of tank insulated with trowelled- on material; remainder insulated with fiberglass
	Sample Results (% and type of asbestos)	Assume ACM	Assume ACM	20-25% chrysotile	10-15% chrysotile
	Sample #	Assume ACM	Assume ACM	675	802
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	π π	n T	5	π π
Quantity	Estimated Amount	130000	500	%	4
	Condition (Good, Fair, or Poor)	poog	D000	Poor	Poor
	Friability (Non, Low, Mod. or High)	C O Z	c O Z	High 4	High A
	Location (where material is found)	Roof	Bays 1, 2, 3, 4, 5, and 6, on AHUs in attic areas	Bays 3 and 5, near AHUs 8, 9, 11, 17, 18	Bay 6, attic
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt	Vibration cloth	Premolded pipe insulation	Tank insulation
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	TSI	TSI
	Homogen- eous Sample Area	-	2	т	4

ACM Survey Results Building 4 (continued)

	Comments		Debris is near catwalks and air handling units.	Material is found on ends and seams of fiberglass-insulated steam pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located. Sample 813 is a QC for sample 812.	Material is found on ends of fiberglass-insulated pipe.
	Sample Results (% and type of asbestos)	10-15% chrysotile 5-10% chrysotile	20-25% chrysotile 20-25% chrysotile	1-5% chrysotile 1-5% chrysotile 1-5% chrysotile 1-5% chrysotile <1 % chrysotile 10-15% chrysotile 1-5% chrysotile 1-5% chrysotile 1-5% chrysotile 1-5% chrysotile	None detected None detected
	Sample #	804	680	676 678 679 801 805 808 809 813	800 810
tity	Unit of Measure- ment (SF, LF or # of fittings)	# of fittings	:	ι. S	:
Quantity	Estimated Amount	18	ŧ	42000	1
	Condition (Good, Fair, or Poor)	Good	Poor	Good	Good
	Friability (Non, Low, Mod. or High)	Low	High	N O C	C N
	Location (where material is found)	Bay 6, attic and Room 4B687	Bays 3, 4, 5 and 6	Bays 1, 2, 3, 4, 5, 6, attic areas	Bay 6, mechanical room
Material Description	Type (e.g., pipe insulation; floor tile)	Pipe fitting insulation	Debris	Joint sealant	Joint sealant
Material	Category (surfacing TSI or misc.)	TSI	TSI	TS.	IST .
	Homogen- eous Sample Area	ر ب	ω	۲	ω

ACM Survey Results t. Building 4 (continued)

	Comments	CT 1 2' x 4' white w/ fissures	CT 2 1' x 1' white w/random holes	CT 6 2' x 4' white w/uniform holes	CT 7 1'x 1' white w/fissures
	Sample Results (% and type of asbestos)	None detected None detected	5-10% amosite 1-5% amosite	30-35% chrysotile 35-40% chrysotile	1-5% chrysotile 1-5% chrysotile
	Sample #	652 674	667 668	642 644	683 684
tity	Unit of Measure- ment (SF, LF or # of fittings)	r.	π T	π π	R F
Quantity	Estimated Amount	13000	1200	100	400
	Condition (Good, Fair, or Poor)	poog	P000	Poog	poog
	Friability (Non, Low, Mod. or High)	Non	Non	No N	N N N
	Location (where material is found)	See Drawing 4/1-CT 4/2-CT 4/4-CT 4/5-CT	See Drawing 4/3 CT	Entry areas See Drawings 4/1-CT 4/6-CT	Room 4B692
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Ceiling tile	Ceiling tile	Ceiling tile
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	ത	0	-	2

ACM Survey Results 1C. Building 4 (continued)

					1
	Comments	FT 1 12' x 12" white floor tile	FT 2 9" x 9" green floor tile	FT 3 9" x 9" gray floor tile	FT 4 9" x 9" brown floor tile
	Sample Results (% and type of asbestos)	1-5% chrysotile <1% chrysotile	1-5% chrysotile 1-5% chrysotile	1-5% chrysotile 1-5% chrysotile	1-5% chrysotile 5-10% chrysotile
	Sample #	640 647	643 645	659 660	653 654
tity	Unit of Measure- ment (SF, LF or # of fittings)	A 8	۳.	π π	SF
Quantity	Estimated Amount	37500	33000	33000	19100
	Condition (Good, Fair, or Poor)	poog	poog	р 0 0	Poo D
	Friability (Non, Low, Mod. or High)	c o N	C 0 Z	c O	N C
	Location (where material is found)	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/4-FT 4/6-FT	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/4-FT 4/5-FT	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/4-FT	See Drawings 4/1-FT 4/2-FT 4/3-FT 4/5-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile and mastic	Floor tile and mastic	Floor tile and mastic	Floor tile and mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	5.	4	٦. ت	<u>φ</u>

ACM Survey Results for Building 4 (continued)

		· · · · · · · · · · · · · · · · · · ·			
	Comments	FT 6 9" x 9" black floor tile	Sample 649 is a QC for sample 648	Sample 651 is a QC for sample 650	
	Sample Results (% and type of asbestos)	<1% chrysotile< 1% chrysotile	None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected < 1% chrysotile None detected
	Sample #	806 807	641 648 656 657 661	646 650 651 655 669 670	662 663 664 665 666 681
ity	Unit of Measure- ment (SF, LF or # of fittings)		п	r. π	_π
Quantity	Estimated Amount		>110000	× 130000	< 5000
	Condition (Good, Fair, or Poor)	рооб	poog	Poog	ნ ი
	Friability (Non, Low, Mod. or High)	c o N	C O N	c O V	C O V
	Location (where material is found)	Room 4B687	Hallways throughout building	Interior walls throughout building Ceilings; custodial closets; Rooms in Bay 6 - See Drawing 4/6-CT	Restrooms and Room 4B687 See Drawings 4/2-CT 4/5-CT 4/6-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile and mastic	Fire code gypsum board	Regular gypsum board	Plaster
Material	Category (surfacing TSI or misc.)	Misc.	Surfacing	Surfacing	Surfacing
	Homogen- eous Sample Area	17	8	6	20

APPENDIX 4-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Revommendation for Building 4.

	Recommended Management Corrective Action	Action as Soon As Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule correction action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.				
	САНА Index	ω	υ				
	Exposure Factor	22	13			49. p	
	Damage/Risk Factor	16	ហ		- 10g		
Material Description	Type (e.g. pipe fitting insulation)	Premolded pipe insulation, tank insulation, pipe fitting insulation, tion, debris	Pipe fitting insulation			•	
Materia	Catagory (surfacing TSI or misc.)	ısı	TSI				
	Homogen- eous Sample Area	6, 7, 4, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6,	ហ				
	Functional Space	4-1 Bays 3, 4, 5, & 6 Attic areas	4-2 Bay 6, Rm 4B687				

	Checklist
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Part 1: Damage/Risk	

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High; 4 Moderate; 2	0
High; 4 Moderate; 2	Minimal;
High; 4 Moderate; 2	-
High; 4 Moderate;	Low;
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$\overline{}$	4 Moderate;
ible evidence of physical damage:	$\overline{}$
•	ble evidence of physical damage:

% **9**

Yes;

Water damage:

- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
- 0 No routine maintenance 0 > 5 ft & no routine maintenance 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 3 <1 ft. or ceiling panel contaminated; 2 1 \leq ft <5; 1 \geq 5 ft; Sprayed- or trowelled-on:
- Type of material (If area contains several friable materials, score the one with the greatest quantity).

Pipe, boiler or duct insulation:

æ.

4 Ceilings/walls 0-4 Other friable material; (1) Boiler/pipe; 3 HVAC;

- Potential for Contact based on material proximity to area occupants:
- (8) High; 5 Medium; 2 Low 5 High; 3 Medium; 0 Low > 10 ft: < 10 ft: Š
- <u>Asbestos content</u>: Use percentage for material with highest probability for becoming airborne:

NO HAZARD Samples contain no asbestos 680 > 50%; 700 S \ 00 (7) 1< % \leq 30; 3 30 < % \leq 50; 675, 802 Sample Numbers:

Damage/Risk Total

Homogeneous Sample Area #(s) 3, 4 5, 6 Homogeneous Sample Area #(s) 3, 4 5, 6 Functional Space 4-1 Williams Barp 3, 4, 5, 6 6 Functional Space 4-1 Williams Carps 3, 4, 5, 6 6	Part 2: Exposure 2 < 100; 2 100 ≤ ft ² < 1000; 3 ≥ 1000 ft, Exposed materials as 'rough'.) mooth perceptible/occasional air stream; 0 No perceptible air flow nu material.) Smooth surface; 0-4 Unique situation (e.g., dirt floor) maximum of 4 points.) or wire; 4 None or wire; 4 None
	4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 13: (Mark all that apply but score only the higher of A or B; maximum of 4 point sprayed- or trowelled-on ceiling or walls 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 Non Pipe, boiler, duct or other material - percent of total exposed and visible to occupi
ntial in air supply; (0) None olotible/occasional air stream; 0rial.)	

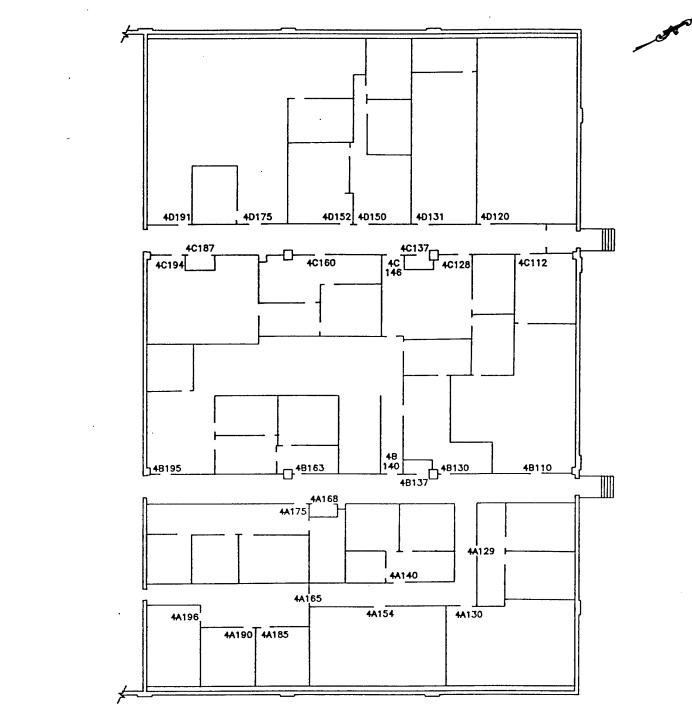
November 19, 19

Friable Asbestos Assessment Checklist

Friable Asbestos Assessment Checklist

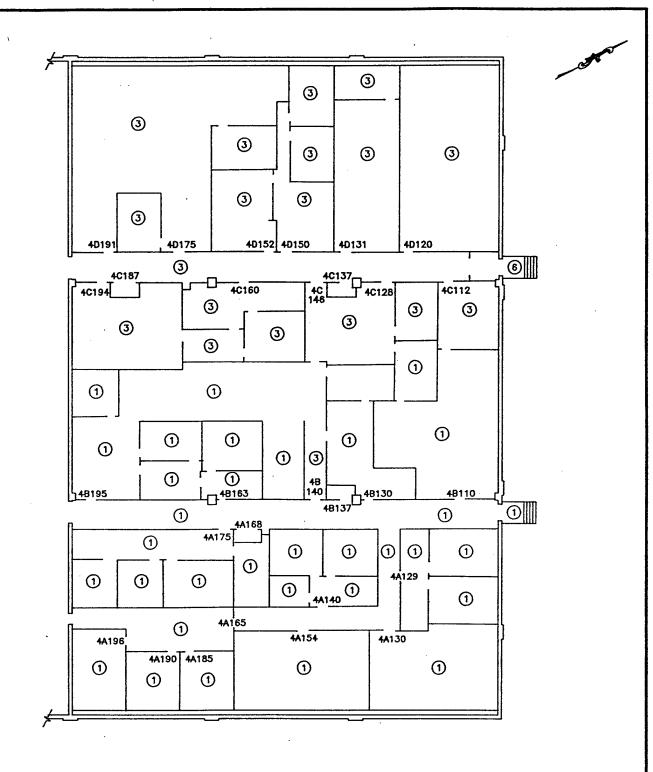
November 19, 199

APPENDIX 4-C BUILDING DRAWINGS



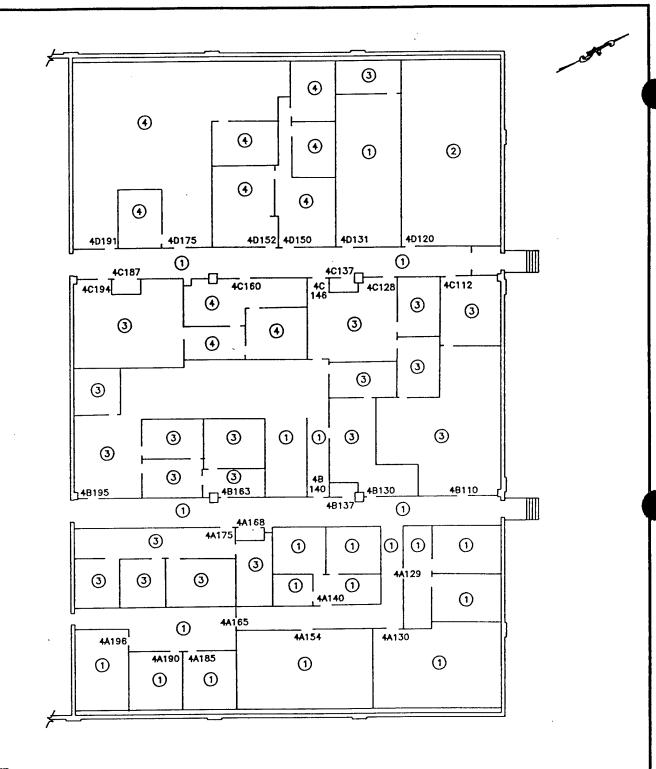
NOTE: NO SAMPLES COLLECTED IN THIS BAY.

USATHAMA maur	LOCATION Camer	on Station, A	lexandria, Vir	ginia
Woodward-Clyde 😌	TITLE		G 4 - BAY 1 E LOCATIONS	,
Federal Services	PROJECT NO. 3001-210		_ DATE: 8-4-91 SCALE: N.T.S	DWG. NO. 4/1-SI



- 1 2' x 4' FISSURED TILE
- 3 2' x 4' SMOOTH TILE
- (6) 2' x 4' UNIFORM HOLE TILE

CLIENT USATHAMA	LOCATION Camero	on Station, Al	exandria, Virg	ginia
Woodward-Clyde 🚭	TITLE		4 - BAY 1 PE LOCATIONS	3
Federal Services	PROJECT NO. 3001-210	DRAWN BY: LAL. CHECKED BY: F.B.G.	DATE: 6-4-91 SCALE: N.T.S.	DWG. NO. 4/1-CT



- 1 12" x 12" WHITE
- 2 9" x 9" GREEN
- (3) 9" x 9" GRAY
- (4) 9" x 9" BROWN

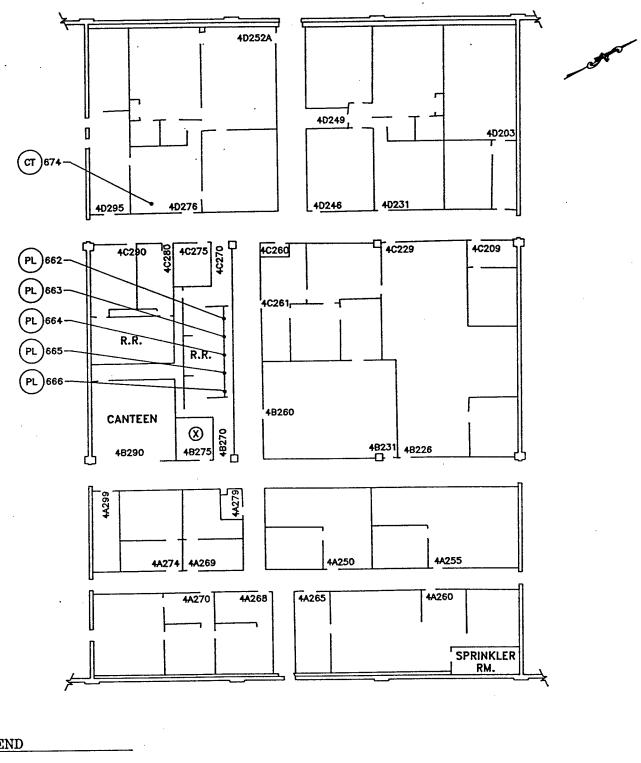
AMAHTARU TIMBUK

Woodward-Clyde Federal Services



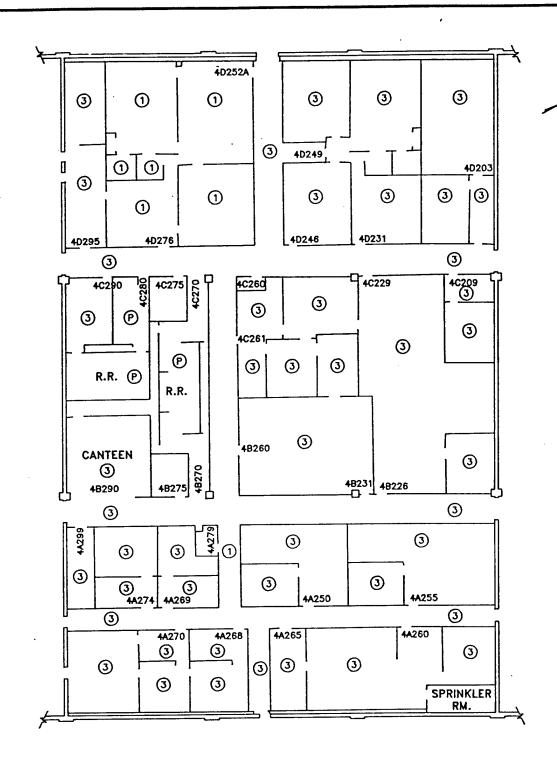
PROJECT NO.

3001-210 DRAWN BY: LAL DATE: 6-4-91 DWG, NO. 4/1-FT



- CT CEILING TILE
- (PL) PLASTER
- X AREA NOT ACCESSED

CLIENT USATHAMA	LOCATION Cameron Station, Alexandria, Virginia
Woodward-Clyde 🚭	BUILDING 4 — BAY 2 SAMPLE LOCATIONS
Federal Services	PROJECT NO. DRAWN BY: LAL DATE: 6-4-91 DWG. NO. 4/2-SL CHECKED BY: F.B.G. SCALE: N.T.S.



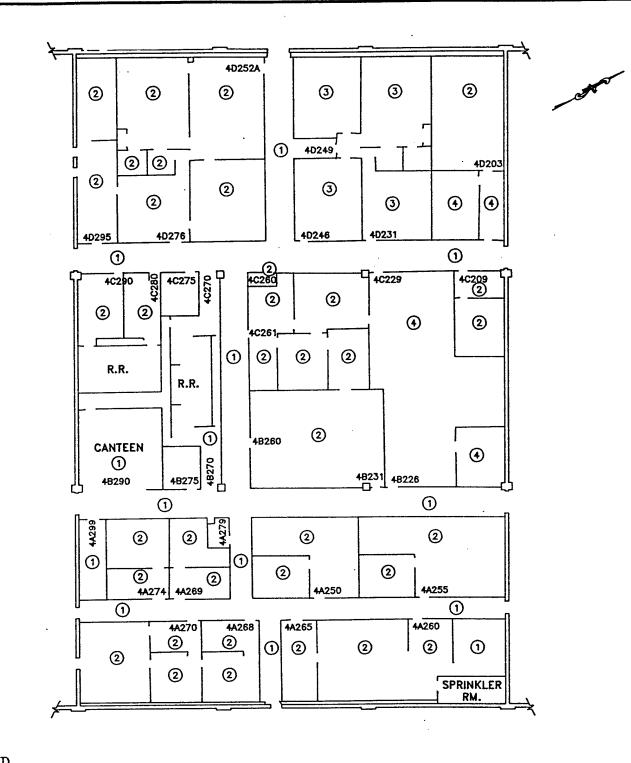
- (1) 2' x 4' FISSURED TILE
- 3 2' x 4' SMOOTH TILE
- P PLASTER

Woodward-Clyde
Federal Services

LOCATION Cameron Station, Alexandria, Virginia

TITLE BUILDING 4 - BAY 2
CEILING TYPE LOCATIONS

PROJECT NO. 3001-210 DRAWN BY: LAL DATE: 8-4-91 DWG. NO. 4/2-CT



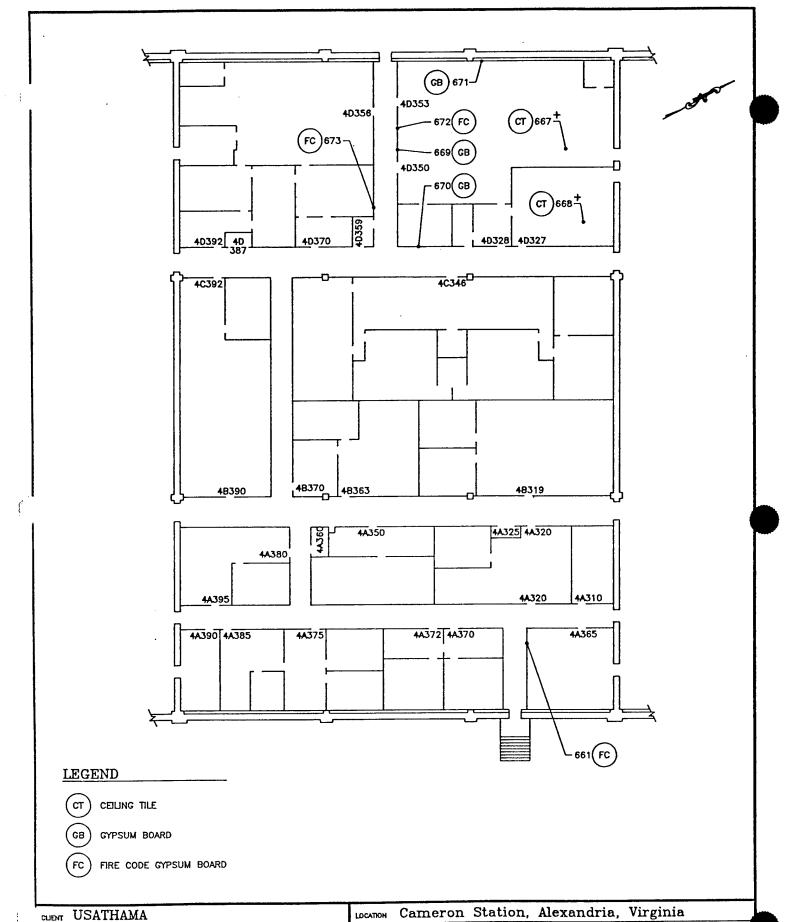
- 12" x 12" WHITE
- (2) 9" x 9" GREEN
- (3) 9" x 9" GRAY
- 4 9" x 9" BROWN

Woodward-Clyde
Federal Services

LOCATION Cameron Station, Alexandria, Virginia

BUILDING 4 - BAY 2
FLOOR TILE LOCATIONS

PROJECT NO.
3001-210 DRAWN BY: LAL DATE: 6-4-91 DWG. NO. 4/2-FT

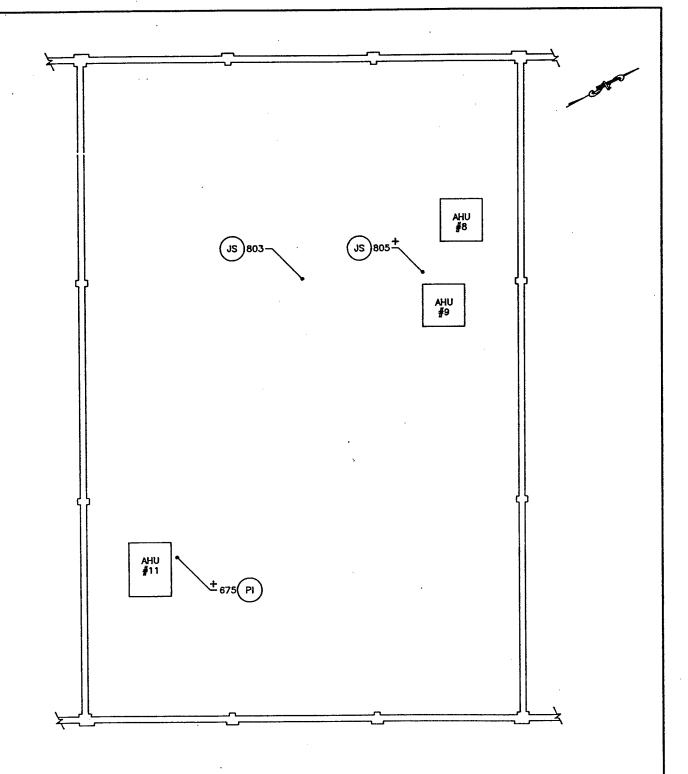


Woodward-Clyde Federal Services

Cameron Station, Alexandria, Virginia LOCATION TITLE BUILDING 4 - BAY 3

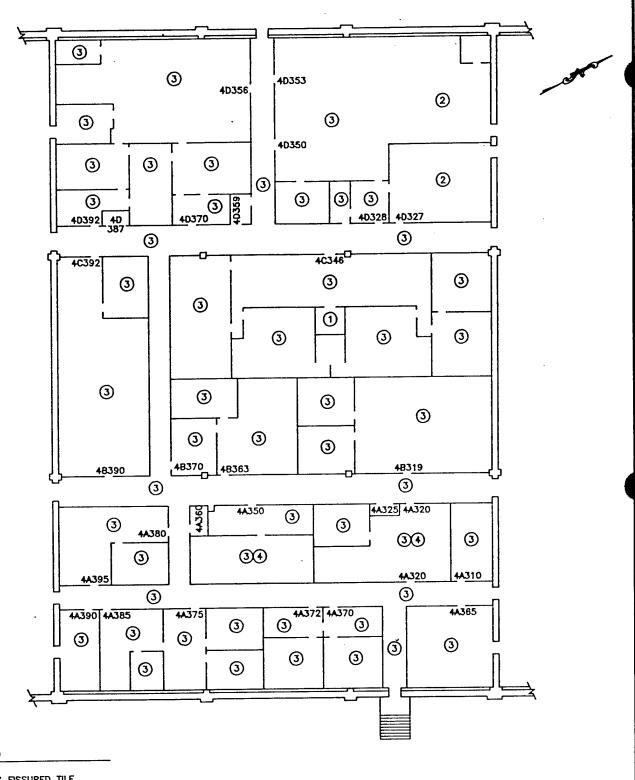
SAMPLE LOCATIONS

PROJECT NO. UPONTO. CHECKED BY: LAL DATE: 4/3-SL



- PI PIPE INSULATION
- JS JOINT SEALANT
- + DENOTES POSITIVE RESULTS

CUENT USATHAMA	LOCATION Camero	n Station,	Alexano	dria, Virg	inia		
Woodward-Clyde	BUILDING 4 — BAY 3 ATTIC SAMPLE LOCATIONS						
Federal Services	PROJECT NO.	DRAWN BY: L.	LL DATE:	6-4-91	DWG. NO. 4/3A-SL		
Lengini pervices	3001-210	CHECKED BY: F.S	.C. SCALE:	n.t.s.	4/ JH_2P		



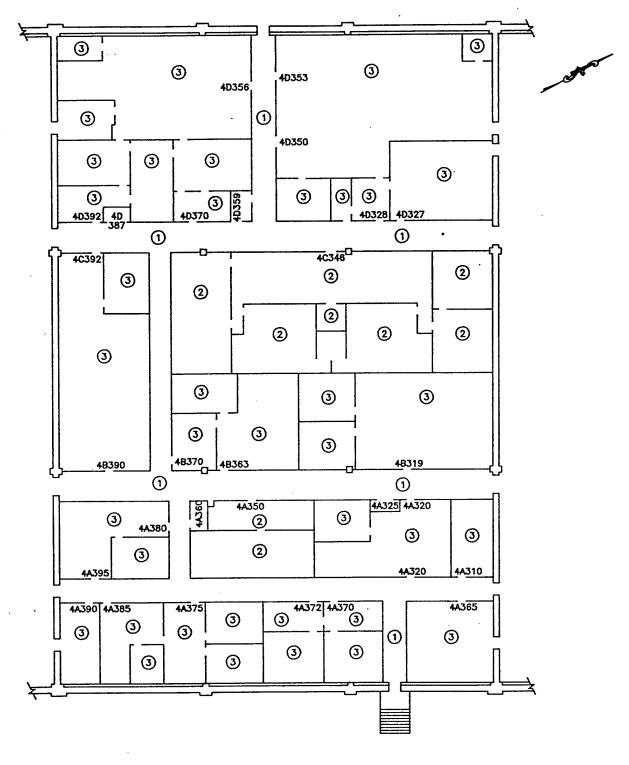
- 1 2' x 4' FISSURED TILE
- 2 1' x 1' RANDOM HOLE TILE
- 3 2' x 4' SMOOTH TILE
- (4) 2' x 4' LIGHT TEXTURE TILE

CLIENT USATHAMA

Woodward-Clyde Federal Services



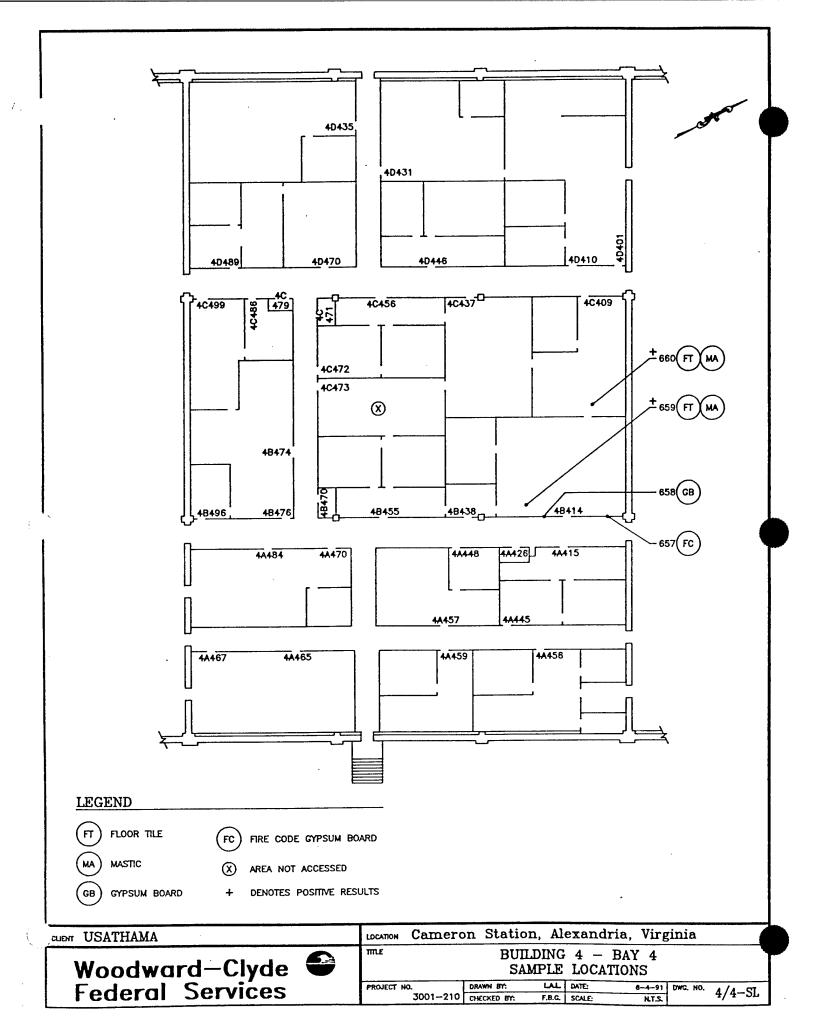
n Station	n, Al	exandr	ia, Virg	inia	
BUIL	DING	4 -	BAY 3		`
CEILIN	G TY	PE LO	CATIONS	;	
DRAWN BY:	1AL	DATE:	8-4-91	DWG. NO.	4/3-CT
CHECKED BY:	F.B.G.	SCALE:	N.T.S.		4/3-61
	BUIL CEILIN DRAWN BY:	BUILDING CEILING TY DRAWN BY: 1-AL	BUILDING 4 — CEILING TYPE LO	BUILDING 4 — BAY 3 CEILING TYPE LOCATIONS DRAWN BY: 1-AL DATE: 8-4-91	CEILING TYPE LOCATIONS DRAWN BY: 1.AL DATE: 6-4-91 DWG. NO.

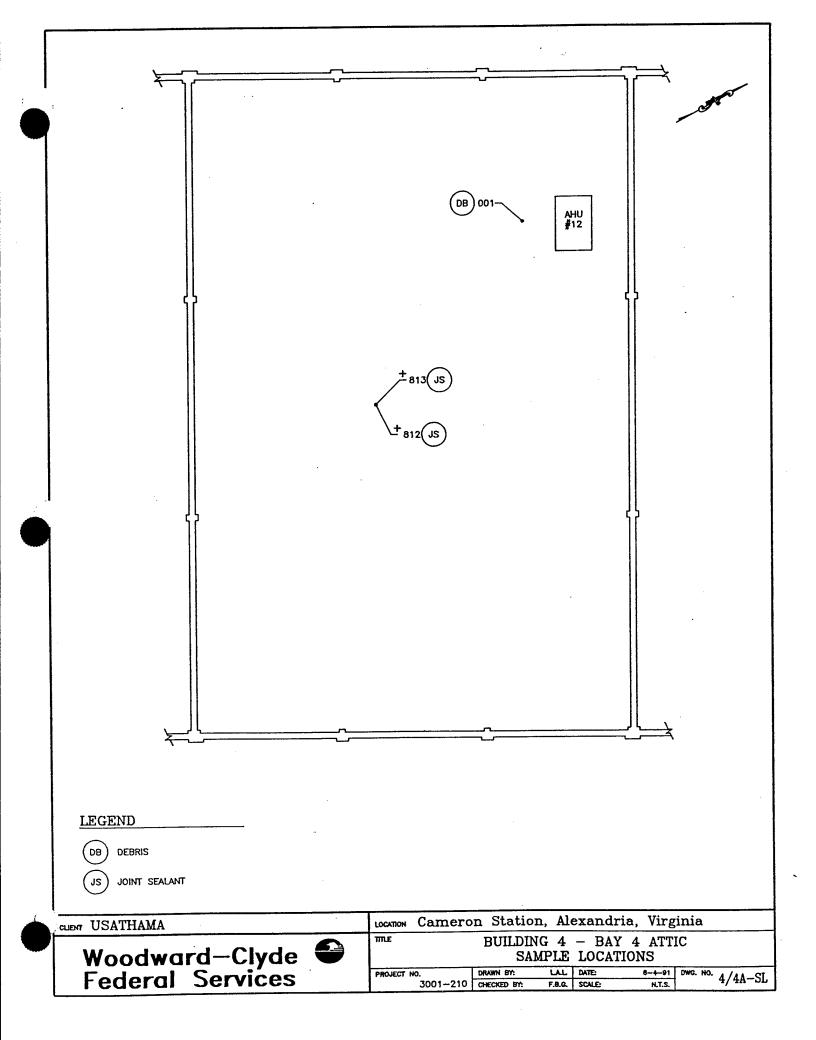


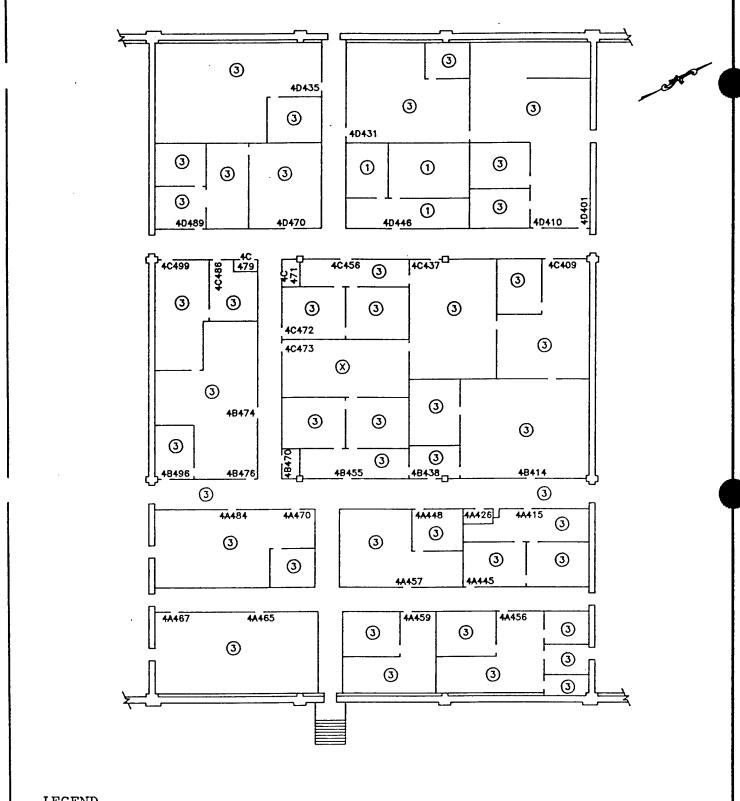
LEGEND

- 1 12" x 12" WHITE
- 2 g x g GREEN
- 3 9" x 9" GRAY

CLIENT USATHAMA	LOCATION Camero	on Station, Ale	exandria, Virg	ginia
	TITLE	BUILDING	4 - BAY 3	
│ Woodward-Clyde 		FLOOR TH	LE LOCATIONS	
Federal Services	PROJECT NO.	DRAWN BY: LAL	DATE: 8-4-91	DWG. NO.
Federal Services	3001-210	CHECKED BY: F.B.G.	SCALE: NTE	4/3-FT







LEGEND

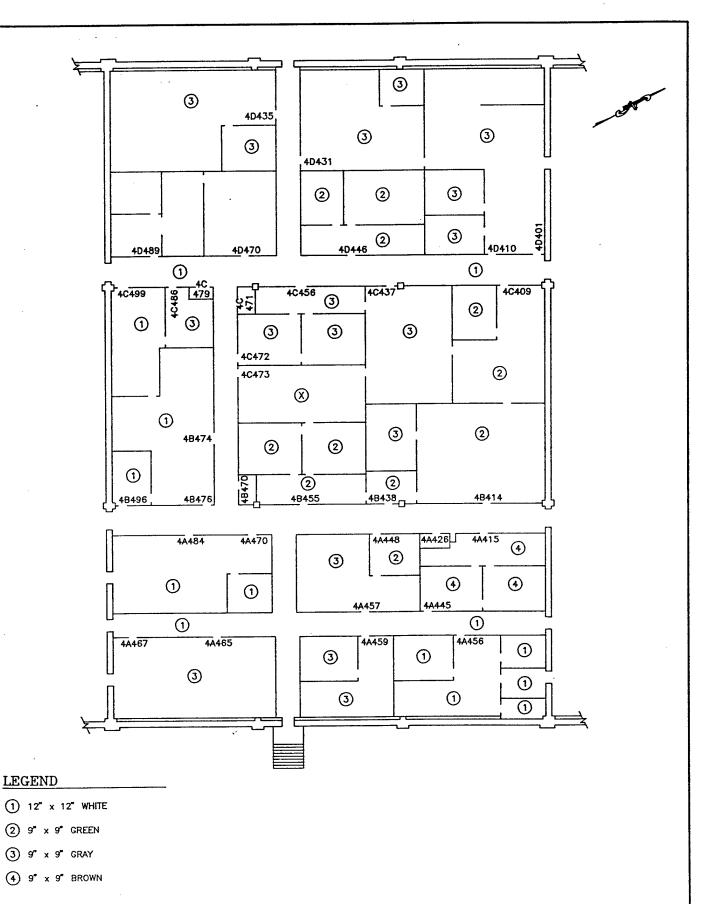
CLIENT USATHAMA

- 1 2' x 4' FISSURED TILE
- 3 2' x 4' SMOOTH TILE

Woodward-Clyde Federal Services



LOCATION	Cameron	n Statio	n, Al	exandr	ia, Virg	inia								
TITLE		BUII	DING	4 -	BAY 4	,								
	CEILING TYPE LOCATIONS													
PROJECT NO	. [DRAWN SY:	LAL	DATE:	6-4-91	DWG. NO.	4/4-CT							
	3001-210 F	CHECKED BY:	F.B.C.	SCALE:	NTS	1	4/4-01							

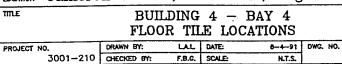


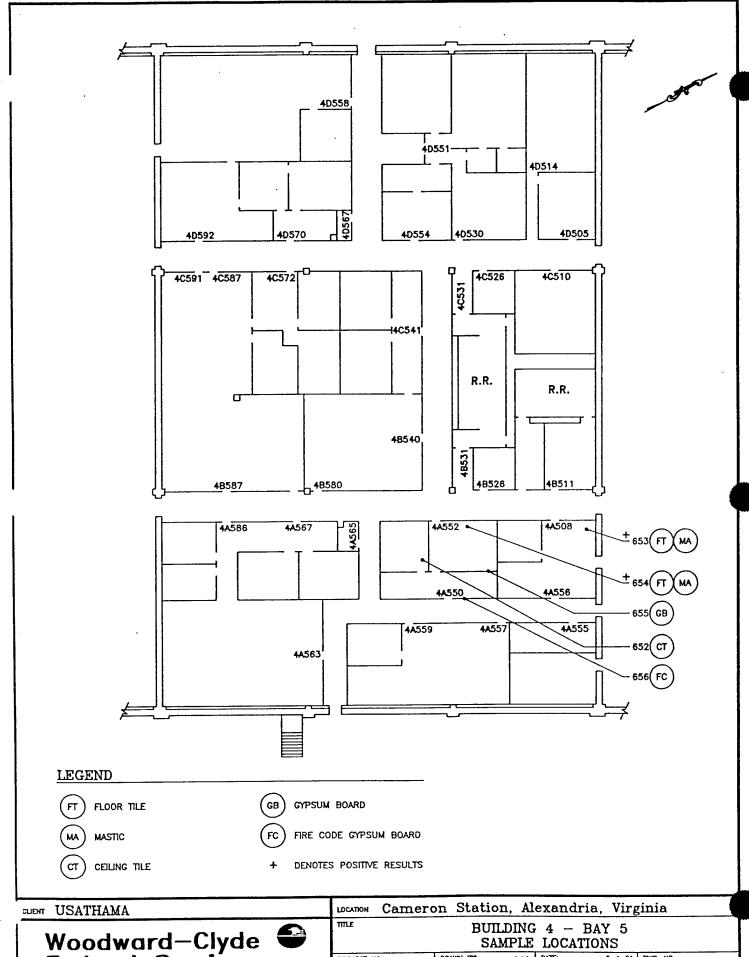
CLIENT USATHAMA

LOCATION Cameron Station, Alexandria, Virginia

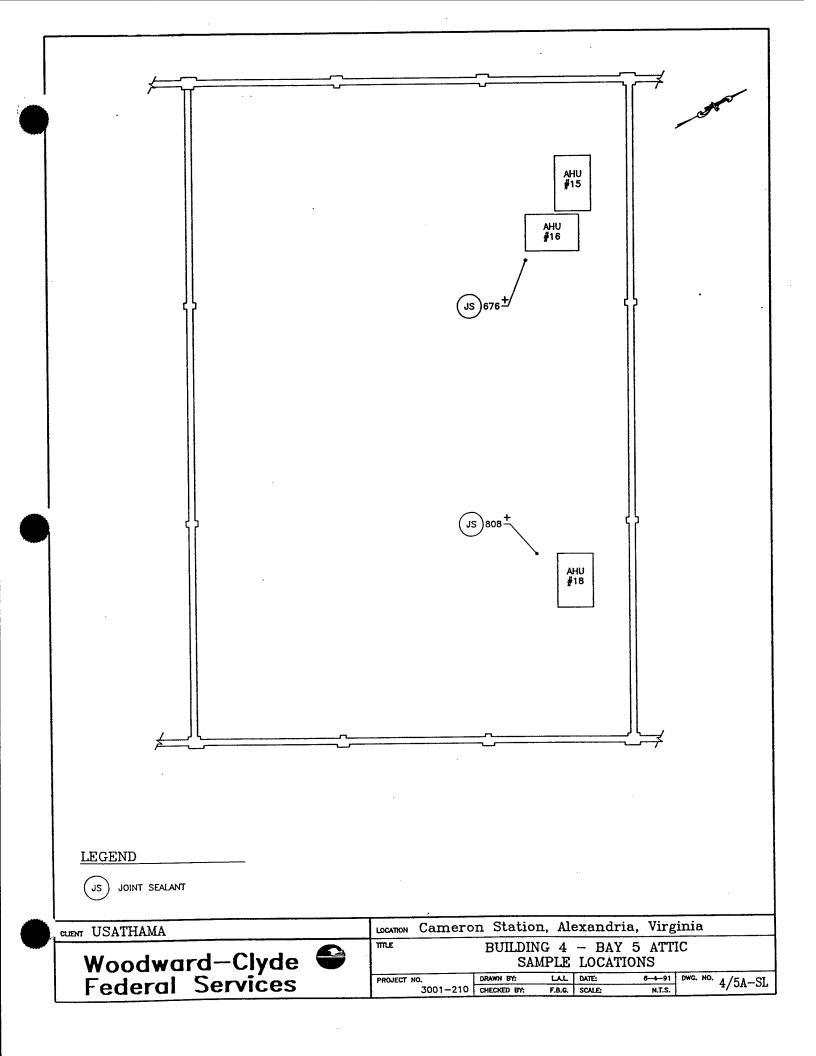
4/4-FT

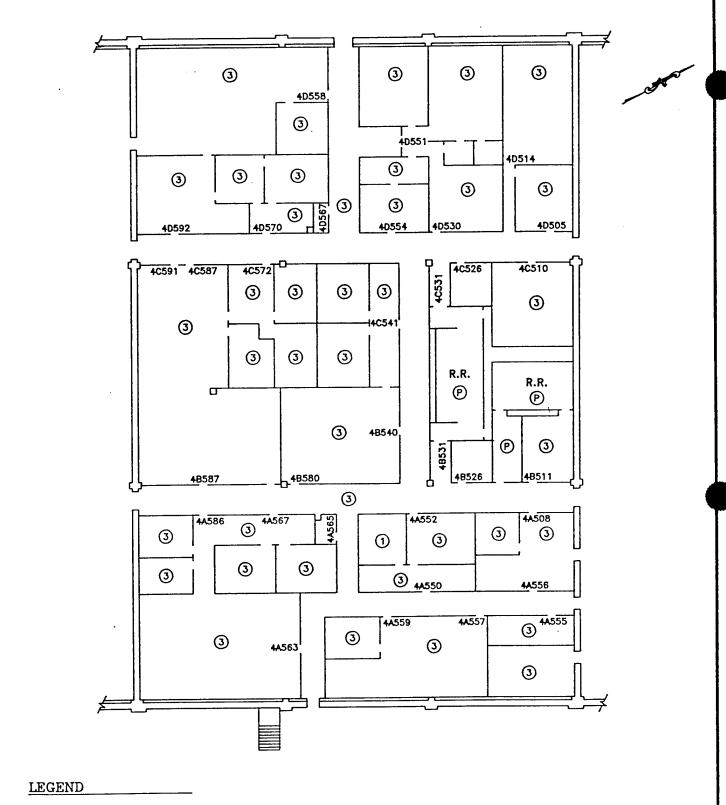
Woodward-Clyde Federal Services





Woodward-Clyde Federal Services LAL DATE: F.B.G. SCALE: DRAWN BY: 6-4-91 DWG. NO. PROJECT NO. 4/5-SL 3001-210 CHECKED BY:





- (1) 2' x 4' FISSURED TILE
- 3 2' x 4' SMOOTH TILE
- P PLASTER

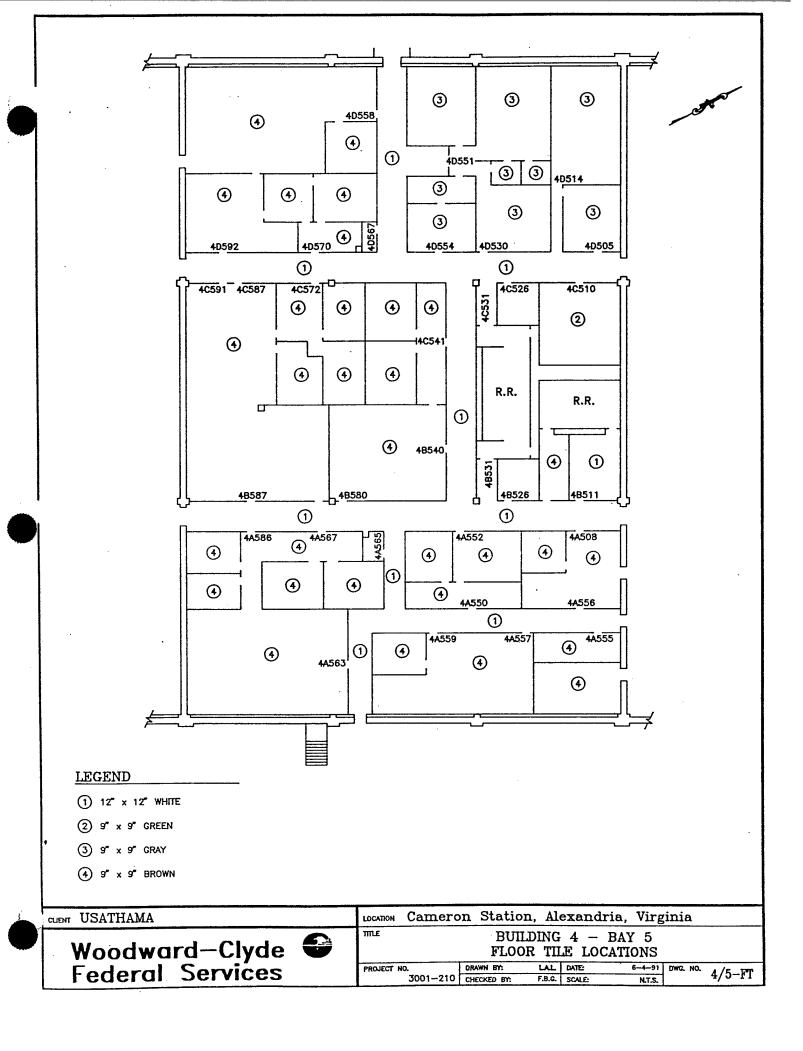
Woodward-Clyde
Federal Services

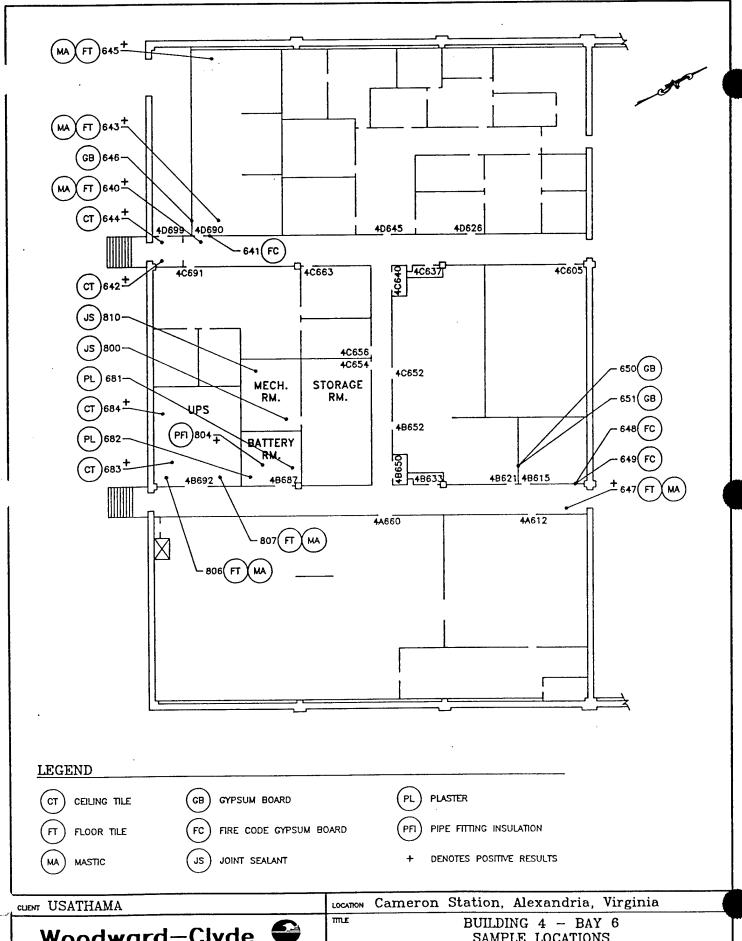
LOCATION Cameron Station, Alexandria, Virginia

BUILDING 4 - BAY 5

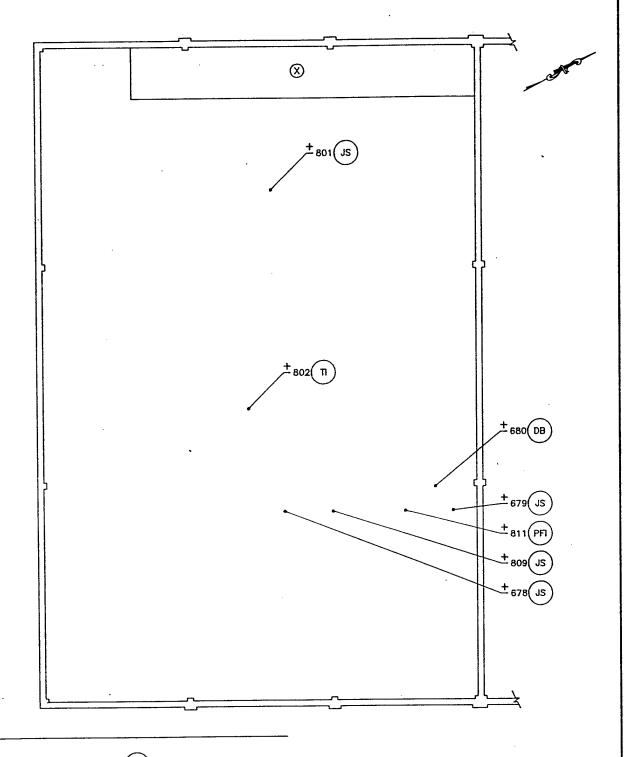
CEILING TYPE LOCATIONS

PROJECT NO. DRAWN BY: LAL DATE: 6-4-91 DWG. NO. 4/5-CT





Woodward-Clyde Federal Services SAMPLE LOCATIONS LAL DATE: 6-4-91 DWG. NO. DRAWN BY: PROJECT NO. 3001-210 CHECKED BY: F.B.C. SCALE:



LEGEND

(DB) DEBRIS

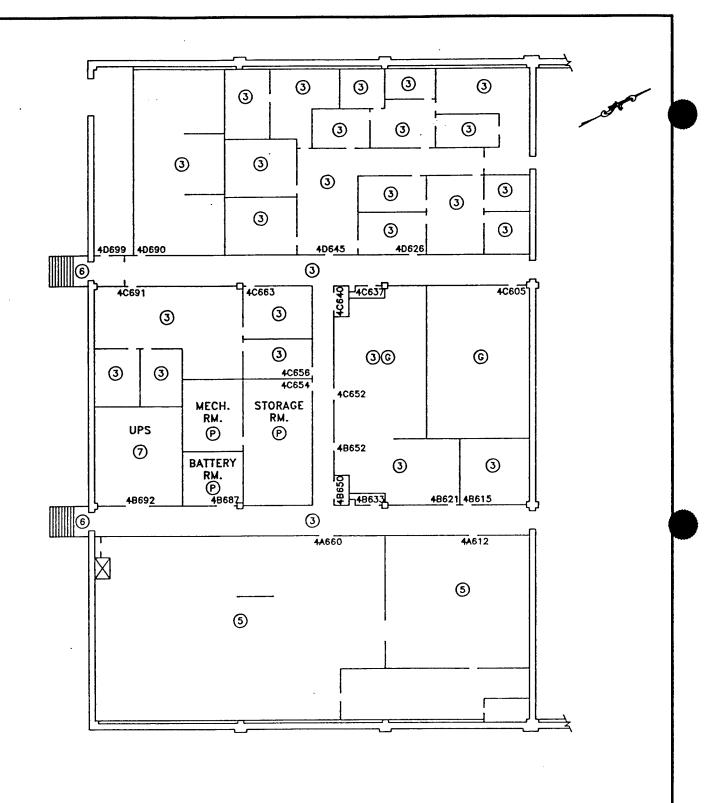
- TANK INSULATION
- PIPE INSULATION
- AREA NOT ACCESSED
- PIPE FITTING INSULATION
- DENOTES POSITIVE RESULT
- JOINT SEALANT

CUENT USATHAMA

Woodward-Clyde **Services**



LOCATION CO	meron Stati	ion, Ale	xandria	, Virg	inia
TITLE	BUILD	ING 4	- BAY 6	ATT	IC
1	S	AMPLE	LOCATIO	NS	
PROJECT NO.	DRAWN BY:	LAL	DATE:	6-4-91	DWG. NO. 4/6A-SL
300	01-210 CHECKED BY:	F.B.G.	SCALE:	n.t.s.	4/ 0A - 5L



- 3 2' x 4' SMOOTH TILE
- (7) 1' x 1' FISSURED TILE
- (5) 2' x 4' ROUGH TEXTURE TILE
- (C) GYPSUM BOARD
- (6) 2' x 4' UNIFORM HOLE TILE
- P PLASTER

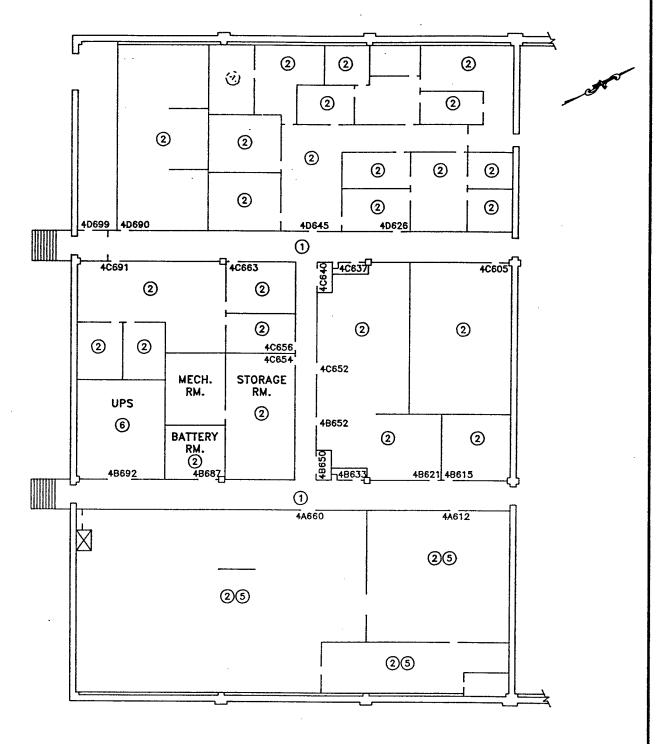
UEM USATHAMA

Woodward-Clyde Federal Services



LOCATION	Cameron	Station,	Ale	xa	nd	ria,	Vir	ginia
TITLE		BUILDI	NG	4	_	BAY	6	

PROJECT NO. DRAWN BY: LAL DATE: 6-4-91 DWG. NO. 4/6-CT



LEGEND

- 1 12" x 12" WHITE
- 2 9" x 9" GREEN
- 5 2' x 2' WHITE
- 6 9" x 9" BLACK

CHIEFIT USATHAMA	LOCATION Camer	on Station, A	lexandria, Vir	ginia	
Woodward-Clyde 👄	TITLE		G 4 — BAY 6 LE LOCATIONS		-
Federal Services	PROJECT NO. 3001-210		DATE: 8-4-91 SCALE: N.T.S.	DWG. NO.	4/6-FT

APPENDIX 4-D WALKTHROUGH SURVEY DATA SHEETS

Walkthrough Survey a Sheet

2 of 4

Sheet

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building				1	Inspector/Date:		
	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
0							
Fumace							
Tanks/Vessels							,
Hu statos		N					
ting	Attic.	×		16 4 Francia	July Y	٥	7
Elec./Telephone							
1	who there	Annes -	floor gel	nevel warles	Jupa Love	culmo	
			3)	-
						•	
Other							
4HU-olleton					Bounn	VAT	700 JF
Closh							
*Type of Insulation:							

1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services



3 of 4

Cameron Statid

HVAC

Building

Inspector/Date:

5. Trowelled-on6. Mud7. Other

*Iype of Insulatic
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

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	Quantity	13,000	1200	-99-000-	201	6500	107	404		37,500	33, oro	33,000	19,100	nong		
ate:	Condition G F P	S	9	Ġ	9	9	8	C		J	9	9	Co.	5	S	
Inspector/Date:	Sample Y N	7	` \		*	, A	>	>		`\	>	>	>		1	
	Location	se dama	,		المستعدد والمستعد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعدد والمستعد	A ANDRON O TO THE PROPERTY OF THE PARTY OF T	"	1/		t,		17	11	11	"	
	Color/Pattern	white tissured	" I random hill.	" Smooth	the father	" lower !		*/	- respect /	But	CHIM	and the second	Sing	Birth	6 Pach	
/	Material*	7X7 1X7	, 2, 4, 2, "		2 4 4		2 X Z	× , ,	7 / C × /C		7 7			7,0	0-	

Floors 9x9 tile 12x12 tile Sheet

Walls Gypboard/Drywall Plaster Other

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Woodward-Clyde Federal Services

November 19, 1990

WITH THE TALACHET STIR

INTERIOR - CEILING

ALLS/FLOORS/MISC.

Inspector/Date: Banks, Charles

	Quantity	>110,0005F		7 (20,000) 5-					Los St						-	
	ong (>///<		7 /3					150					·		:
6 41	Condition G F P	12000		Good					San	,	Conf			•		
Inspector/Date:	Sample Y N	λ	,	>	,				Y	/	χ					
	Location	Mi hallanus	Asil, Sides	interior wastis	Mouds out	Certin, in auxidial	Claresto	also 40605	165×10000 + 13687		consistion board	No Gun board	combon in alove			
	Color/Pattern	ب بمريد م		March Col												
Building #7	Material*). 11 11 11 11 11 11 11 11 11 11 11 11 11		JANIMIL PARKEN					Dist.		corres Dusking between	8/45, 3 £ 4				

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only

Woodward-Clyde Federal Services

APPENDIX 4-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

and the special and the teat (will by Acarediaed Ealborated).

CERTIFICATE OF ANALYSIS

-PAGE



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

Job Site : Cameron Station Job Number: 3001

: 03/05/91 1 02/26/91 Date Analyzed Date Sampled

Person Submitting: S. Barnes

MICROSCOPY LHGHT POLARIZED E O SUMMARY

COMMENT														
ANALYST ID**	AS	AS	AS	SE.	88	AS	S B	AS	AS	5 8	AS	æ	A8	AS
PARTICULATE	95-99	95-99	65-70	80-89	60-65	80-89	50-55	100	85-90	75-80	75-80	85~90	30-40	95-99
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S MATERI ORGANIC FIBERS	7	01-02		₹	₹	10-15	45-50	₽	10-15	20-25	20-25	10-15	30-35	1
OTHER FIBROUS MATERII MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS		₹	!	1	; ; !	1		1	₹	1	₽	₹	1	!
/ OTHER FIBROUS MATERIAL \$/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	!	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1	1	1	1	1	1	!	!		30-35	1
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- ASBESTOS CROCIDO- 1 LITE 1	1		1	1			1	1	1	1		1	!	:
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CHRYSO-	01-02	1	30-35	01-05	35-40	01-05	!	₹	1		1		1	01-05
ASBESTOS PRESENT*	Δ,	z	μ	Δ,	Д	д	z	Δ4	z	z	z	z	z	Д
SAMPLE	640	641	642	643	644	645	646	647	648	649	650	651	652	653

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

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Compared to the state of the state of the AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

: Cameron Station Job Number: 3001 Job Site Bldg #

Person Submitting: S. Barnes : 02/26/91 1 03/05/91 Date Analyzed Date Sampled

MICROSCOPY LHGHH POLARIZED **Н** SUMMARY

COMPENT														
ANALYST ID**	у	7/3	3/8	λS	УЗ	УЗ	NS NS	S.	SS.	λS	SS.	AS	ZS.	SS.
PARTICULATE	90-95	70-75	80-85	60-65	70-75	85-94	95-99	70-75	100	100	100	100	100	45-50
AL/	}		!		1	05-10	!	!	!			1	!	
CTHER FIBROUS MATERII MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	1	25-30	15-20	35-40	25-30	!	₽	25-30					1	05-10
R FIBROUS FIBROUS GLASS		1	4	1	7	1	1	₽	1			!	!	
/ OTHER PIBROUS MATERIAL 4/ MINERAL FIBROUS ORGANIC WOOL GLASS PIBERS OTHER	9 9 3 1 1	•	1	1		!	1	1 1 1 1	1 1 1	!	1	1	!	35-40
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ASBESTOS PRESENT*	ρι	z	z	z	z	ρ4	ρ	z	z	z	×	z	z	ρ
SAMPLE ID	654	655	656	657	658	629	999	661	662	663	664	665	999	667

N = ASBESTOS NOT OBSERVED COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





AMA Analytical Services, Inc.

nome peop perioded (#1143) Accorded Laboratory

CERTIFICATE OF ANALYSIS

PAGE 3



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

Bldg # : 4

Job Site : Cameron Station Job Number: 3001

Date Sampled : 02/26/91
Date Analyzed : 03/05/91
Person Submitting: 8. Barnes

MICROSCOPY LIGHT POLARIZED 0 SUMMARY

. INEMPOO															
ANALYST ID**	<u>ل</u> م	2	2	ą	AS A	AS	AS	AS	AB	AB	A.B	A.B	¥9	AB	AB
PARTICULATE	л 1 0 0	65-70	70-75		65-70	85-90	65-70	30-40	35-45	10-20	40-50	35-45	35-45	100	95-99
AL 4/					1 1 1	1		!	1	1	!		1	1 1 1	!
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R FIBROUS FIBROUS					1	1	1	1	35-40	80~85	50-55	55-60	35-40	₹	01-05
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/ ASBESTOS SHANSO- CROCIDO- II		50-10		!	1			1	1	. !	!	!	1	!	
CHRYSO-	977.	 	6 1 1 1 1			1			20-25	01-05	01-05	01-05	20-25	₽	1
ASBESTOS	FRESENT	י יב	z	z	z	z	z	z	ρ	Α	ρ.	Pι	ρι	ρ.	z
SAMPLE	a (B (600	670	671	672	673	674	675	929	678	619	680	681	682

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the bublic and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

The broad band of the [#114] were distributed to be added by

CERTIFICATE OF ANALYSIS

: 02/26/91 : 03/05/91 Date Sampled

Person Submitting: S. Barnes Date Analyzed

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

Job Site : Cameron Station

Bldg #

Job Number: 3001

MICROSCOPY LIGHT POLARIZED 户 () SUMMARY

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** ANALYST ID CODE (SEE LAST PAGE) N - ASBESTOS NOT OBSERVED * P = ASBESTOS PRESENT COMMENTS:

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS

PAGE 5



Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 4

Job Site : Cameron Station Job Number: 3001

Date Sampled : 02/26/91
Date Analyzed : 03/05/91

Person Submitting: S. Barnes

MICROSCOPY LIGHT POLARIZED H O SUMMARY

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LAST PAGE OF 5 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Ingulation Samples.

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Andreas (Astronomy to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar protection to clients, the public and the condition that it is not to be used, in whole or in part, in any advertising or publicity matter whotout prior written authorization from us. Sample types, locations and collection protects are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

	DYNAMAC CORPORATION LABOR	ATORY TEST REPORT	
DATE:		DYNAMAC LAB NUMBER	11-90-636
	RT SUBMITTED TO:	REPORT PREPARED BY	•
WOODW ONE C ROCKV	NARD CLYDE FEDERAL SERVICE CHURCH ST. SUITE 404 VILLE MD 20850	DYNAMAC CORPORATION 11140 ROCKVILLE PIX ROCKVILLE, MD 208	N KE 52
	NTION: SALLY GUARDIA		ER
PROJE	ORDER NUMBER: ECT NAME: CAMSTA ECT CODE:		
TYPE	OF ANALYSIS: PLM		•
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Ć	THE ANALYTICAL RESULTS CONTAINED SPECIFIC SAMPLES AS RECEIVED FROM FROM THESE RESULTS IS SOLELY THE	THE CLIENT, AND AN	Y EXTRAPOLATION
3.) T	THE PERCENTAGES REPORTED ARE AREA AS PROBABLE RANGES.	ESTIMATES ONLY AND	ARE EXPRESSED
4.)	THIS TEST REPORT MUST NOT BE REPRAPPROVAL FROM THIS LABORATORY.	ODUCED EXCEPT IN FU	LL AND WITH
COMM			

CERTIFIED BY: Roll Revelof CIH

LABORATORY MANAGER

DYNAMAC CORPORATION LABORATORY RESULTS SUMMARY OF RESULTS DYNAMAC LAB NUMBER:11-90-636

ENT SAMPLE NUMBER.	TYPE OF ASBESTOS	PERCENT ASBESTOS	SAMPLE LOCATION
001	CHRYSOTILE	20-25	BUILDING 4, NEAR AHU #12, ATTIC AREA, BAY 4

DYNAMAC CORPORATION TEST REPORT COMPLETE RESULTS BY SAMPLE DYNAMAC LAB NUMBER:11-90-636

MPLE DATA BULK ASBESTOS RESULTS

SAMPLE NUMBER: 001 ASBESTOS PERCENT FRACTION #: 01B CHRYSOTILE 20-25

ANALYST: RICK SANDER VERIFIED: RICK SANDER

SAMPLE DESCRIPTION:

BEIGE, LOOSE FIBROUS MATERIAL NONASBESTOS PERCENT

CELLULOSE 1-2 FIBROUS GLASS 25-30 NONASBESTOS, NONFIBROUS 40-45

COMMENTS:

APPENDIX 4-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde Fe ral Services

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CFS Project No.

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stallation (2): CM ample Program (3): aboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES COC By: 1/2/1/2 1/8

deral Services Cameron Station Alexandria, VA 22304 703 617-7373 Field Office: Woodward-Cly Building 17 Door 2

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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S Project Scientist

. 0 WCFS Project

installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde Chain Services CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Tederal Services Cameron Stat. Alexandria, VA 22304 703 617-7373 Field Office: Woodward-Building 1

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Woodward-Clyde F ral Services

VCFS Project Nu 101

stallation (2): CM ample Program (3): BEI aboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 0 M 13

Field Office: Woodward-Ci- Federal Services
Building 17
Door 2
Cameron Static...
Alexandria, VA 22304
703 617-7373

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Admin. Office:

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5 Project Scientist

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyde F ral Services

COC By: JM 18

ederal Services Field Office: Woodward—
Building 17
Boor 2
Cameron Station
Alexandria, VA 22304
703 617—7373

Admin. Office:

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Gold: WCFS Project Scientist

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Woodward-Clyde F ral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

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Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Admin. Office:

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Woodward-Clyde F ral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES coc By: 2 10115

yderal Services Field Office: Woodward—
Building 17
Boor 2
Cameron Station
Alexandria, VA 22304
703 617—7373

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Woodward-Clyde Feerral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES $\bar{\omega}$ COC By:

** sderal Services Field Office: Woodward-Ct deroil
Building 17
Door 2
Comeron Statle...
Alexandria, VA 2230+
703 617-7373

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Admin. Office:

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ral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: [15 | 9

'aderal Services Fleid Office: Woodward, Sderol Building Con 2 Cameron Station Alexandria, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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WCFS Field Sample	<u>(8)</u>	807	808	809	0/8	118	7/8	8/3	Signature:
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OPTICAL MICROSCOPY LAB

Page L of L

CHAIN OF CUSTODY/SAMPLE SUBMITTAL

Analysis Type Requested Total No. of Samples, Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Time Relinquished by Relinquished by Relinquished by Date Submitted Charge No. Collected by Received by Received by Received by Woodward Clyde Federal Service 54,tc 404 90070 -0800 CAMSTA SOMO 016 Date(s) of Sampling_ 33 Project Name Invoice to: V Reports to: Company / Address / Attention: 7 Phone /

Condition Condition

Condition Condition Condition

Condition

am/p/nso/04

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Comments	Cassette
Written	
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		,	Casselle	ette		
Sample ID	Description/Location	Time On	Time Off	Flow Rate Volume	Volume	Special Instructions
/ 00						19x # 301
						309-1579
						68/9

BUILDING 5

5.1 DESCRIPTION

Building 5 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar, felt and gravel over wood. It is divided into three bays by masonry firewalls. Originally built as a warehouse, it has been converted to offices with separate attic areas housing the HVAC system. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and regular and fire code gypsum board. There is a plaster ceiling in the mechanical room in Bay 2. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

The Defense Logistics Agency is the major occupant in Building 5. The building also houses the facility's travel agency.

5.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 5-A through 5-F. A summary of this data is presented below.

5.2.1 Suspect Friable ACM

Four homogeneous areas of suspect friable ACM were identified and thirteen bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following four materials:

- Trowelled-on breech insulation, mechanical room (5B352)
- Pipe fitting insulation on 3" 12" fittings, mechanical room (5B352)
- Joint sealant on ends of fiberglass-insulated pipe, mechanical room
- Pipe fitting insulation, attic areas, Bays 1, 2 and 3.

These materials were found in two functional spaces.

Assessment of the breech material, pipe fitting insulation, and joint sealant in the mechanical room indicates a damage factor of 19 and an exposure factor of 23. According to the GAHA Index, this material ranks as Priority A.

Assessment of the pipe fitting insulation in the attic areas indicates a damage factor of 6 and an exposure factor of 15. According to the GAHA Index this material ranks as Priority C.

5.2.2 Suspect Nonfriable ACM

Fourteen homogeneous areas of suspect nonfriable ACM were identified and forty-one bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- FT 1 9" x 9" tan floor tile and mastic.
- FT 2 9" x 9" brown floor tile and mastic
- FT 3 9" x 9" gray floor tile and mastic
- FT 5 9" x 9" green floor tile and mastic
- FT 7 12" x 12" gray floor tile and mastic
- FT 8 12" x 12" black floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

5.2.3 Material Assumed To Contain Asbestos

The following three homogeneous areas are assumed to be ACM.

- Tar and felt roofing material
- Vibration cloth
- Tar sprayed on brick walls.

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

5.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and identified as nonsuspect:

- CT 1 2' x 4' smooth fiberglass ceiling tile
- CT 2
 2' x 4' rough texture fiberglass ceiling tile
- CT 3 2' x 4' rough texture fiberglass ceiling tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

5.4 AREAS NOT ACCESSED

All areas in Building 5 were accessed.

5.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
5	5000 SF TSI 100 MF		200 MF

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

5.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 5-A ACM Survey Results

Appendix 5-B Assessments/Recommendations for Friable ACM

Appendix 5-C Building Drawings

Appendix 5-D Walkthrough Survey Data Sheets

Appendix 5-E Laboratory Certificate of Analysis

Appendix 5-F Sample Chain-of-Custody Forms

APPENDIX 5-A ACM SURVEY RESULTS

ACM Survey Results for Building 5

							=
	Comments		·	A thin layer of this material has been sprayed on brick walls	Sample 205 is a QC for sample 204.	3"-12" fittings with insulation	
	Sample Results (% and type of asbestos)	Assume ACM	Assume ACM	Assume ACM	15-20% chrysotile 10-15% chrysotile 15-20% chrysotile 10-15% chrysotile	15-20% chrysotile 10-15% chrysotile 10-15% chrysotile	
	Sample #	Assume ACM	Assume ACM	Assume ACM	199 204 205 208	202 206 207	
tity	Unit of Measure- ment (SF, LF or # of fittings)	S.F	R	n T	R.	# of fittings	
Quantity	Estimated Amount	130000	280	200	> 5000	100	
	Condition (Good, Fair, or Poor)	Good	Poog	Doo D	Poor	Poor	
	Friability (Non, Low, Mod. or High)	Non	Non	Non	High	High	
	Location (where material is found)	Roof	Bays 1, 2 and 3, on AHUs in attic areas & Room 5B352	Bay 1, Attic Walls	Room 58352, Breech	Room 58352	
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt	Vibration cloth	Tar	Trowelled-on insulation	Pipe fitting insulation	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	TSI	TSI .	
	Homogen- eous Sample Area	_	2	т	4	ഗ	

Woodward-Clyde Federal Services July 2, 1991

D:\ASBESTOS/B05.asb

ACM Survey Results ... Building 5 (continued)

	Comments	Material, which is approximately 1/4" thick, is on the ends of fiberglass-insulated pipe.		Sample 827 is from material recently applied to fiberclass insulated pipe.	Sample 828 is from can of sealant currently in use.	CT 4 2' x 4' white with random holes		
	Sample Results (% and type of asbestos)	10-15% chrysotile 15-20% chrysotile 15-20% chrysotile	20-25% chrysotile 20-25% chrysotile 20-25% chrysotile	None detected	None detected	None detected		
	Sample #	213 214 215	694 695 696	827	828	219 220		
tity	Unit of Measure- ment (SF, LF or # of fittings)	# of pipe ends	# of fittings		:	R F		
Quantity	Estimated Amount	25	200	1	;	2700		
	Condition (Good, Fair, or Poor)	Poor	Good	Good		Good		
	Friability (Non, Low, Mod. or High)	High	Low	Non		Non		
	Location (where material is found)	Room 5B352	Bays 1, 2 & 3, attic areas	Bay 1, attic		Bay 3, See Drawing 5/3-CT		
Material Description	Type (e.g., pipe insulation; floor tile)	Joint sealant	Pipe fitting insulation	Joint sealant	·	Ceiling tile		
Material	Category (surfacing TSI or misc.)	TSI	TSI	TSI		Misc.		
	Homogen- eous Sample Area	ω	7	ω		. თ		

Homogen- Category Type eous (surfacing (e.g., pig. Sample TS) or insulation					Quantity	tity			
<u></u>	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Messure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
10 Misc. (Ceiling tile	Bay 3, south end. See Drawing 5/3-CT	No.	Good	6850	:	221 224	None detected None detected	CT 5 12" x 12" white with uniform holes
11 Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT	C O N	goog	5450	SF	180 188	1-5% chrysotile 1-5% chrysotile	FT 1 9" x 9" tan floor tile
12 Misc.	Floor tile & mastic	See Drawing 5/1-FT 5/2-FT	c o N	poo _S	5700	л Г	182	5-10% chrysotile 1-5% chrysotile	FT 2 9" x 9" brown floor tile
Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT 5/3-FT	Non	D000	71400	R.	179 185 186	1-5% chrysotile 1-5% chrysotile 1-5% chrysotile	FT 3 9" x 9" gray floor tile Sample 186 is a QC for sample 185.
Misc.	Floor tile & mastic	See Drawings 5/1-FT 5/2-FT 5/3-FT	c O V	900 9	12400	m m	1933	None detected None detected <1% chrysotile ² 'using PLM 'using PEM 'using TEM	FT 4 12" x 12" beige floor tile

ACM Survey Results T. Building 5 (continued)

	Comments	FT 5 9" x 9" green floor tile	FT 6 12" x 12" white floor tile	FT 7 12" x 12" gray floor tile	FT 8 12" x 12" black floor tile	Sample 181 is a QC for sample 178,
	Sample Results (% and type of asbestos)	1-5% chrysotile 1-5% chrysotile	None detected None detected	1-5% chrysotile 5-10% chrysotile	1-5% chrysotile 1-5% chrysotile	None detected None detected None detected None detected None detected None detected None detected
	Sample #	187 218	191 196	197	209	178 181 190 192 211 212 222
ıntity	Unit of Measure- ment (SF, LF or # of fittings)	ι Γ	J.S.	R F	R T	π
Que	Estimated Amount	16450	5700	4200	225	154700
	Condition (Good, Fair, or Poor)	Bood	Good	Good	Good	G 00d
	Friability (Non, Low, Mod. or High)	Non	Non	Non	Non	N C
٠	Location (where material is found)	See Drawings 5/1-FT 5/2-FT 5/3-FT	See Drawings 5/1-FT 5/2-FT	See Drawings 5/1-FT 5/2-FT	See Drawing 5/3-FT	Interior walls throughout building
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Regular gypsum board
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Surfacing
	Homogen- eous Sample Area	15	16	17	8	თ -

П			
	Comments		
	Sample Results (% and type of asbestos)	None detected None detected None detected < 1% chrysotile None detected None detected None detected	None detected None detected None detected
	Sample #	177 184 193 198 216 223	194 201 203 203
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	n T	R.
Quantity	Estimated Amount	36200	0000
	Condition (Good, Fair, or Poor)	goog	D000
	Friability (Non, Low, Mod. or High)	NoN	E 0 2
	Location (where material is found)	Hallways & entryways throughout building	Ceiling in Room 5B352 See Drawing 5/2-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Fire code gypsum board	Plaster
Material	Category (surfacing TSI or misc.)	Surfacing	Surfacing
	Homogen- eous Sample Area	20	

ACM Survey Results 1... Building 5 (continued)

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APPENDIX 5-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 5

	Recommended Management Corrective Action	Immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
	GAHA Index	∢	U
	Exposure Factor	23	7
	Damage/Risk Factor	01	ω
Material Description	Type (e.g. pipe fitting insulation)	Breech insula- tion, pipe fitting insulation, joint sealant	Pipe fitting insulation
Materia	Category (surfacing TSI or misc.)	TSI	181
	Homogen- eous Sample Area	6, 5, 6	7
	Functional Space	5-1 Bay 3, Room 5B352, mechani- cal room	5-2 Bays 1, 2, & 3, attic areas



Asbestos Audessment Checklist

Friable	

7

Building

Cameron Station

Inspector

Material Type(s) - Creek yn sullo 11.10

 i^{υ} Homogeneous Sample Area #(s)

Functional Space

Rom 5/3352 ر ا ا Part 1: Damage/Risk

0 None

2 Low; 1 Minimal;

4 Moderate; • Visible evidence of physical damage: (5) High;

3 Yes; Water damage:

oN 0

• Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

A. Sprayed- or trowelled-on:

<1 ft. or ceiling panel contaminated; $2 \le t \le tt < 5$; $1 \ge 5$ ft;

Pipe, boiler or duct insulation:

æ.

3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required;

0 No routine maintenance

0 > 5 ft & no routine maintenance

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

0-4 Other friable material; (T) Boiler/pipe; 3 HVAC;

4 Ceilings/walls

Potential for Contact based on material proximity to area occupants:

< 10 ft: Ą

7 Low 5 Medium; ® High;

3 Medium; 5 High; ≥ 10 ft:

0 Low

Asbestos content: Use percentage for material with highest probability for becoming airborne:

NO HAZARD Samples contain no asbestos 5 > 50%; $3 30 < \% \leq 50;$ $(j) 1 < \% \le 30;$

Sample Numbers:

Damage/Risk Total

Woodward-Clyde Federal Service

Friable Asbestos Assessment Checklist
Inspector County Granlet 1/31/41
mple Area #(s) (-) 250 . 58352 . Mechanical Norm
1
(
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $1 \cdot 10 \le \text{ft}^2 < 100$; $2 \cdot 100 \le \text{ft}^2 < 1000$; $(3) \ge 1000 \text{ ft}_2$
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply; maximum of 7 points.)
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (1) None of the above
• Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
• <u>Activity</u> (Refers to forces such as vibration, water or steam acting on material.)
(5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
• Floor: 4 Carpet; 2 Seamed or rough surface; 0 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$(1) \le 25\%; 25 < \% \le 50; 350 < \% \le 75; 475 < \% \le 100$
• Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$; $5 > 1001$ or medical/youth centers/residential
Exposure Total A3 Bervic

November 19, 19

Friable Asbestos Assessment Checklist

Woodward-Clyde Federal Service

Inspector Barne Guardle 3/11/77	Material Tyne(s) (Material Tyne(s)
را	
Station Station	Callicion Station

Part 2: Exposure

Material Type(s)

Homogeneous Sample Area #(s)_

2,2

Functional Space_

• Amount of Visible Friable Material:
$$0 < 10 \text{ ft}^2$$
; $1 \cdot 10 \le \text{ ft}^2 < 100$; $(2 \cdot 100 \le \text{ ft}^2 < 1000)$;

- Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
- /4/Rough; 3 Pitted; 2 Moderate; 1 Smooth
- 5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 0 None of the above • Ventilation: (Mark all categories that apply; maximum of 7 points.)
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
 - Activity (Refers to forces such as vibration, water or steam acting on material.)

th (constant vibration);
$$\binom{2}{2}$$
 Medium (occasional vibration);

0 Pow 0

• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

• Floor:

A. Sprayed- or trowelled-on ceiling or walls

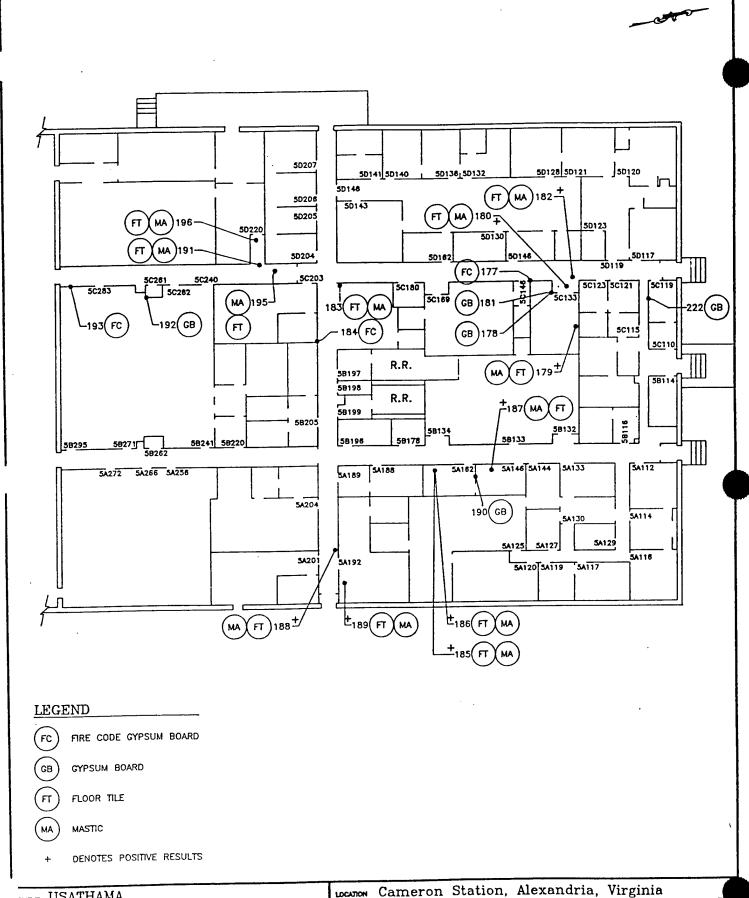
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

$$(1) \le 25\%$$
; 2 25 < % \le 50; 3 50 < % \le 75; 4 75 < % \le 100

Woodward-Clyde Federal Service:

November 19, 1991

APPENDIX 5-C BUILDING DRAWINGS



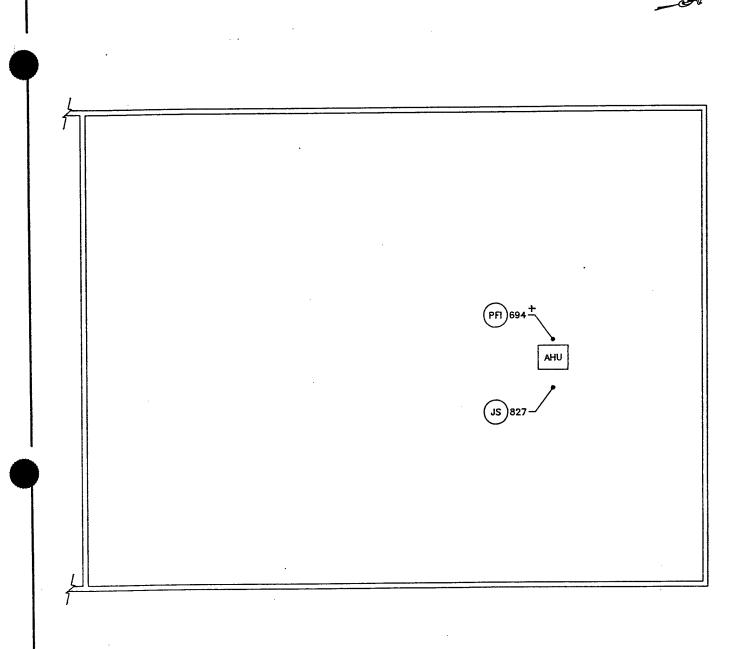
Woodward-Clyde
Federal Services

LOCATION Cameron Station, Alexandria, Virginia

BUILDING 5 - BAY 1

SAMPLE LOCATIONS

PROJECT NO. DRAWN ST: LAL DATE: 5-22-91 DWG, NO. 5/1-SL



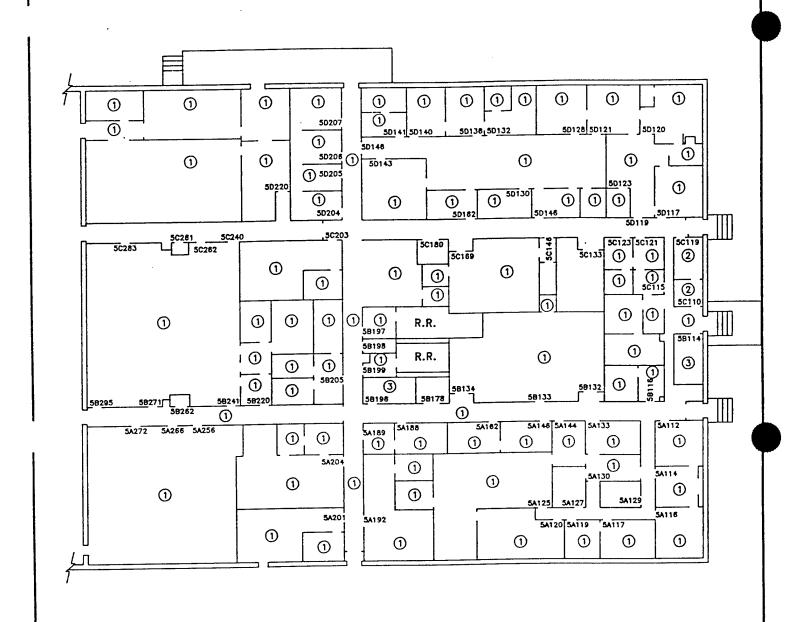
LEGEND

(PFI) PIPE FITTING INSULATION

AHU AIR HANDLING UNIT

+ DENOTES POSITIVE RESULTS

CLENT USATHAMA	LOCATION Camero	n Station	, Ale	xandria,	Virg	inia
Woodward-Clyde	TITLE	· · ·		- BAY 1 LOCATION		C
Federal Services	PROJECT NO.	DRAWN BY:			-24-91	DWG. NO. 5/1A-SL
Legelai acivicos	3001-210	CHECKED BY:	F.B.G.	SCALE	P.T.S	3/1A-3L



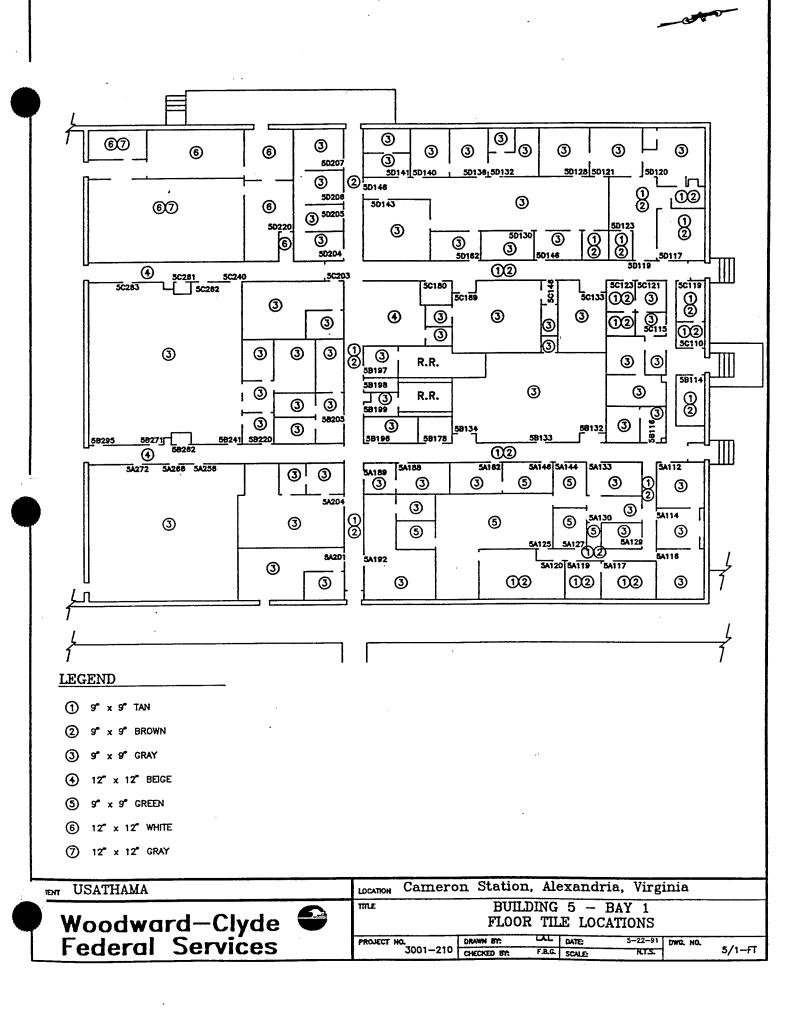
LEGEND

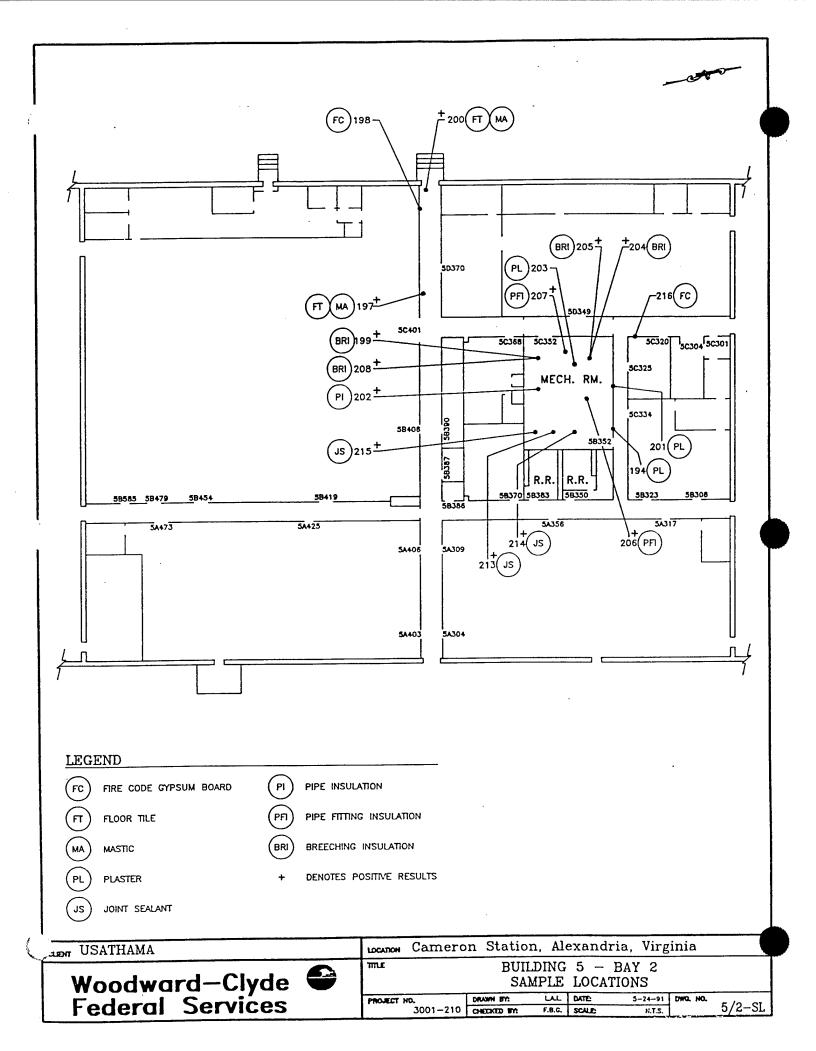
- 1) 2' x 4' SMOOTH TEXTURE FIBERGLASS TILE
- (2) 2' x 4' ROUGH TEXTURE FIBERGLASS TILE
- 3 2' x 4' ROUGH TEXTURE FIBERGLASS TILE

CLIENT USATHAMA

Woodward-Clyde Federal Services

LOCATION Camero	n Station	n, Ale	exandr	ia, Virg	inia	
TITLE	BUIL	DING	5 - 1	BAY 1		
	CEILIN	G TY	PE LO	CATIONS		
PROJECT NO.	DRAWN BY:	LAL	DATE:	5-22-91	DWG NO.	= /4 CM
3001-210	CHECKED BUT	F.B.C.	SCALF:	NTC		5/1-CT





APPENDIX 5-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Station				Walkthrough Survey . 4 Sheet 1 o
Building #5		EXTERIOR	<u>IOR</u>	Inspector Date 1/14/91 ex aff.
Exterior Siding				MMC- 3/8.
Masonry [] Steel/Al	Steel/Aluminum	Wood	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	Soffit	п		
Sample Y N ~~	Condition	F. P	Quantity SF	
<u>Roof</u> Shingle (asphalt/fiberglass) □	かいかし Tar & Felt 匠	Steel Panel	Fiberglass Panel	Other
Sample Y N	Condition	<u>p</u>	Quantity 130, @v SF	
Exterior Mechanical Systems	Sample	Condition	Quantity	Location
Vent pipe [4]	X X	GFP	· · · · · · · · · · · · · · · · · · ·	
	z	<u>}=</u>		
Louvers III	8 2 > >	ט ט א א		
	Z	, <u>F</u>		
		<u> </u>	STRUCTURAL	
Wood Joists/Beams 日	Steel Joists/Beams E	Wood Columns	Steel Column [2]	Concrete Column E
Sample Y (N)	Condition G	ŗ.	Quantity SF	
Sample Y (K)	Condition	स	Quantity SF	
Firewalls - Steel	Masonry 🖾		Firedoor	
Sample Y (N)	Condition G	F P	Quantity	
				Woodward-Clyde Federal Services

2 of 4

Sheet

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Cameron Stat.

7 Quantity 1500 Condition G F P D Sample Y N Inspector/Date: × Type of Insulation* Fromeller # Units Insulated Y N ン Ω ** *Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass Rn 513 352 Elec./Telephone р Р Tanks/Vessels Breeching Furnace Building Other Boiler

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

3 of

111

HVAC

Cameron Stati

	Diam. of Pipe						3"-12" (1)						To the second se			July	ses
	Quantity SF/LF or # Fittings						*	#						mor min		some " to " see	Woodward-Clyde Federal Services
r/Date:	Amount						2011	1700	-		30	250/20		125		onlated pape	Woodward
Inspector/Date:	Condition G F P						Q	Ú								inch of FG immlades	
	Sample Y N	A		N			X	>.			nyaco	/)		\wedge		on bulb i	
	Type of Insulation*	70		77			much	Juny			Uprafor Sto	1/		Jan Labort		Tout ocalant	
	Insulated Y N	>		>			, <u> </u>	>								Ton	
	Location	Bay1-3 9 Hic		7645 1-3 ct/16			Rn 58352	1 1	12		75. 53 357) (Pn 50352		5. Trowelled-on 6. Mud 7. Other	
Building		Duct		Pine			Fittings			Other	,					*Type of Insulation: 1. Premold 2. Blanket 3. Aircell	

INTERIOR - CEILING/v., LLS/FLOORS/MISC.

			·		٧	۲_	8	٧	カ	ર		Q	Ą			 1
	Aprouna K. Quantity	g6 24 1 SE	361	183	2678301711	6954 3° W	5433 58YW	5702 5700	714T6 3011410	12 +37 SF140	16440 SE11450	5617 50570	4158 Se 7200	223		
late: 1/14/9/	Condition G F P	pood	Load	godel	Ganel.	good	300e	good	60000	good	pook	good	socol Socol	8000	0	
Inspector/Date:	Sample Y N	590	en s	2007	ues	46.8	yes	458	202	465	746.0	yes	400	400)	
	Location	See Plan Ss (plan	(Ser Plan	Spe Plan			Sor Plea	Sec Man		1	`	See Plan		
	Color/Pattern	painted / smooth	who house	white Iranan teduse	ihite, random hak	white/unform hate	tan	houn	own.	deta:	green	S. K.	Osta	black		
Iding #5	Material*	Position file #1 six		`	۱ ۱	(21172 (16 5 12 K12"	Groon Tile # 1 9% o"	The the so o'so.	ı	Ano The 64 12 12.	Elos file of gra	Don 174 6 12012	Floor tile # 1 12"x12"	1		

Walls Gypboard/Drywall Plaster Other laterial
iling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Cameron Station

		×	Ų						 			·				
	Quantity	13168015470	3420 3620	•	2891 ~											
ate:	Condition G F P	ن	5		5), wereaf -									٠
Inspector/Date:	Sample Y N	>	7		>		X								ile	12x12 tile Sheet
	Location	in term - othershows	halls: enture		cerlax 58352		Fm 50192							[H	9x6	12x1 Shee
	Color/Pattern													:	walls Gypboard/Drywall	Plaster Other
		7/0	200				10/									
	Material*		1			V-413-76-)	ne Lail me Las	Suma made						*Material	Ceiling 2x4 tile	2x2 tile 1x1 tile

Woodward-Clyde Federal Services

November 19, 1990

APPENDIX 5-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

Colors and the attraction (colors)

Woodward-Clyde Federal Services

1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001

Date Sampled : 01/26/91 Date Analyzed : 02/19/91 Person Submitting: D.M. BARNES

MICROSCOPY LIGHT POLARIZED **回** SUMMARY

COMMENT															
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This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratones, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

COMMENTS: * P - ASBESTOS PRESENT

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS is partitional transmission of the managed Williams

Woodward-Clyde Pederal Services

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

.. .. Bldg #

1 01/26/91 Date Sampled

: 02/19/91 Date Analyzed

Person Submitting: D.M. BARNES Job Site : Cameron Station Job Number: 3001

MICROSCOPY
LIGHT
POLARIZED
0 F
SUMMARY

COMMENT														
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COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE) N - ASBESTOS NOT OBSERVED

vcFS Project

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Woodward-Clyde Tral Services CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

7 8 5

COC By: /

"-deral Services Field Office: Woodward
Building
Boor 2
Comeron Statio..
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyde Fr ral Services

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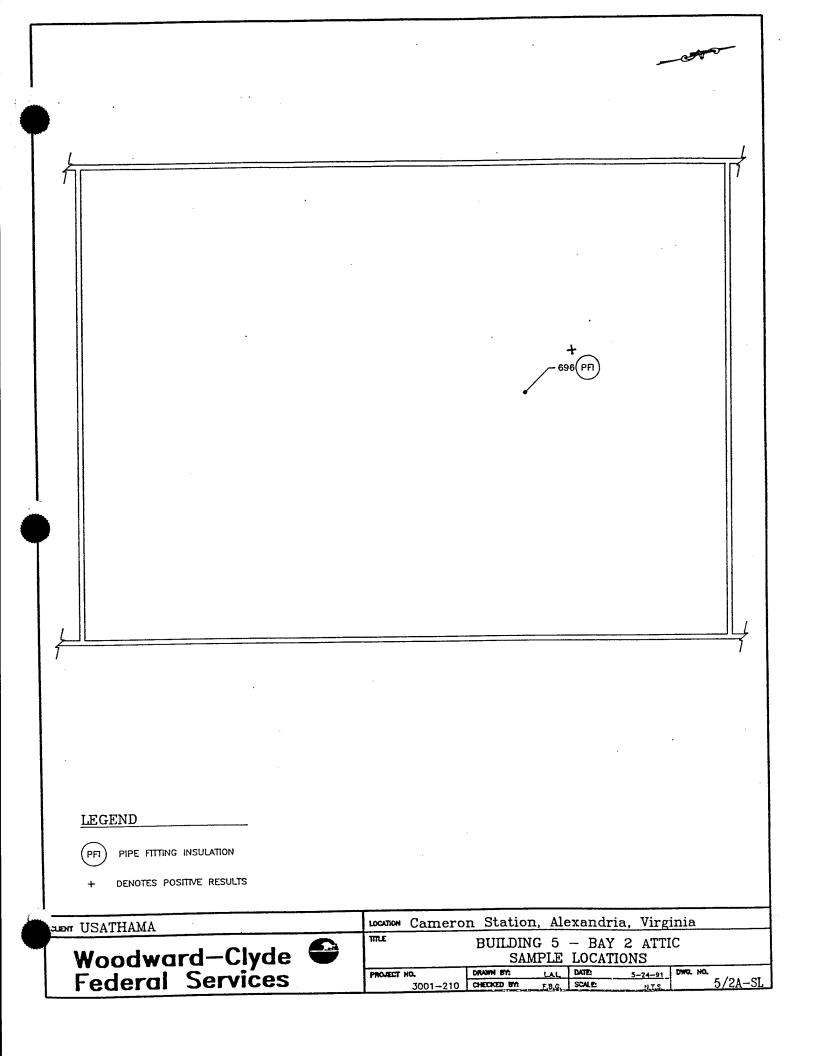
Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Field Office: Woodward-Clyr' derol
Building 17
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Alexandria, VA 22304
703 617-7373

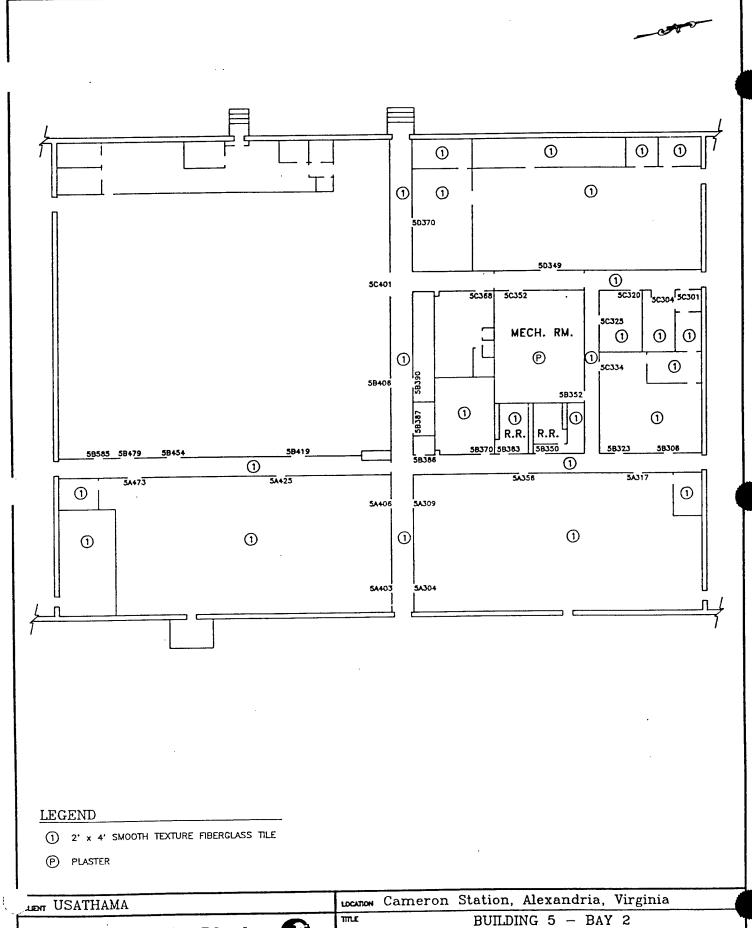
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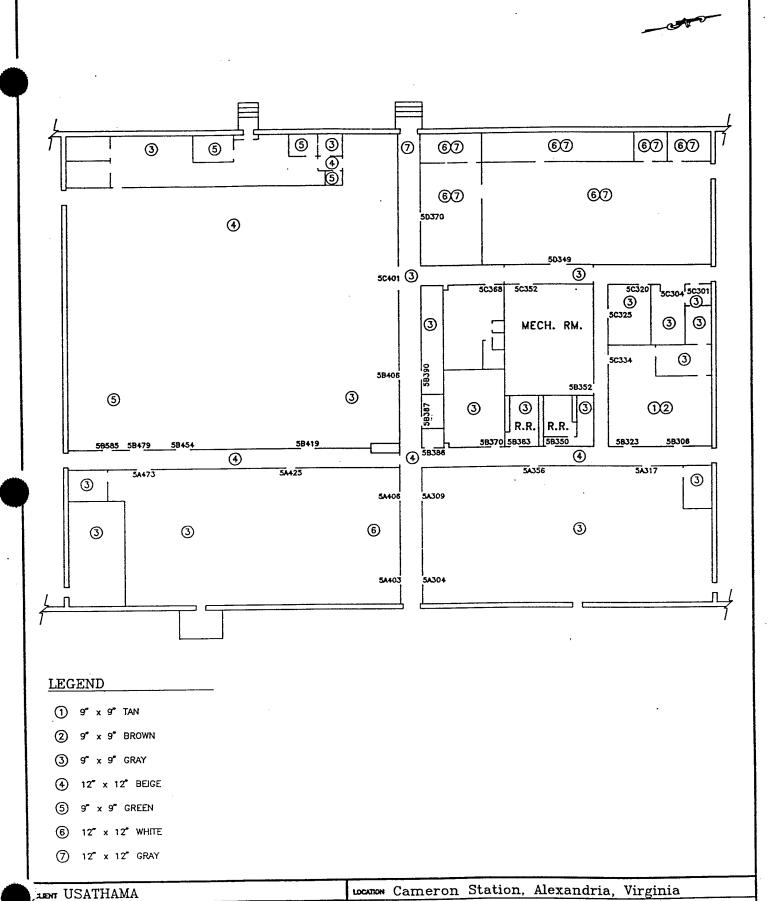
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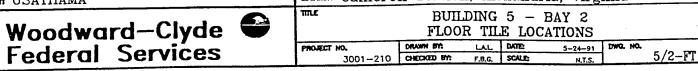
FS Project Scientist

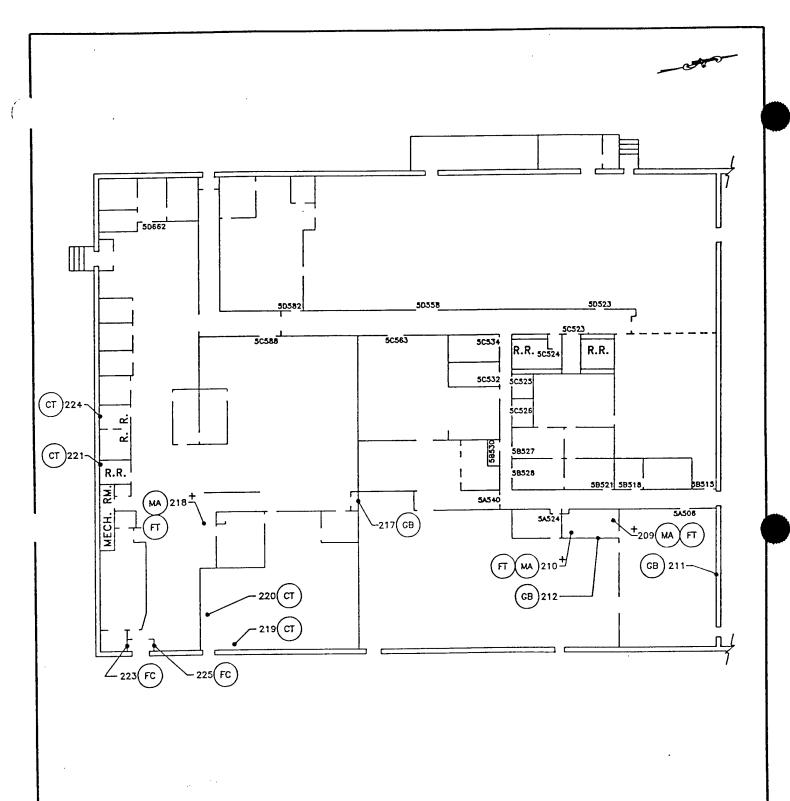
Annitation Carrione Inc











- FC FIRE CODE GYPSUM BOARD
- MA) MASTIC
- GB GYPSUM BOARD
- (CT) CEILING TILE

FT FLOOR TILE

DENOTES POSITIVE RESULTS

Woodward-Clyde
Federal Services

LOCATION Cameron Station, Alexandria, Virginia

BUILDING 5 - BAY 3
SAMPLE LOCATIONS

PROJECT NO.

DOCUMENT NO.

SOUTH DECRETOR FI.B.C. SCALE:

N.T.S.

DIVING 15 - BAY 3
SAMPLE LOCATIONS

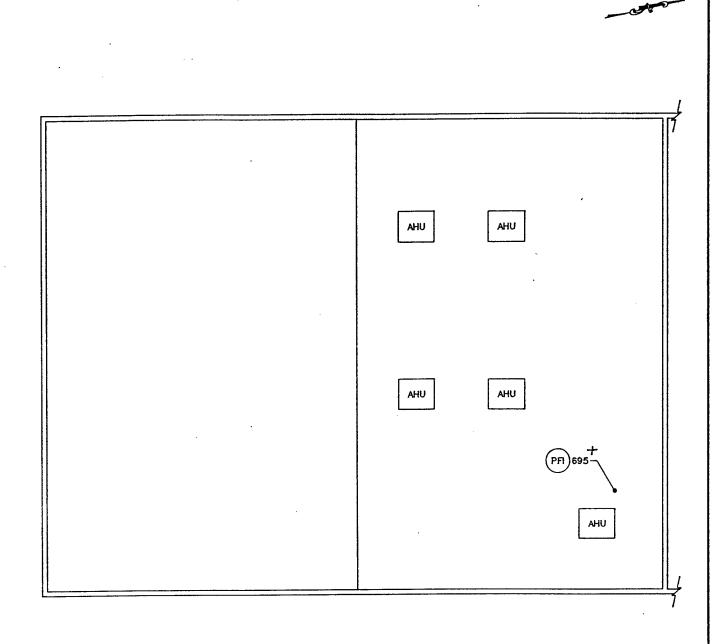
PROJECT NO.

SOUTH DECRETOR FI.B.C. SCALE:

N.T.S.

DIVING NO.

5/3-SL





PIPE FITTING INSULATION

AHU AIR HANDLING UNIT

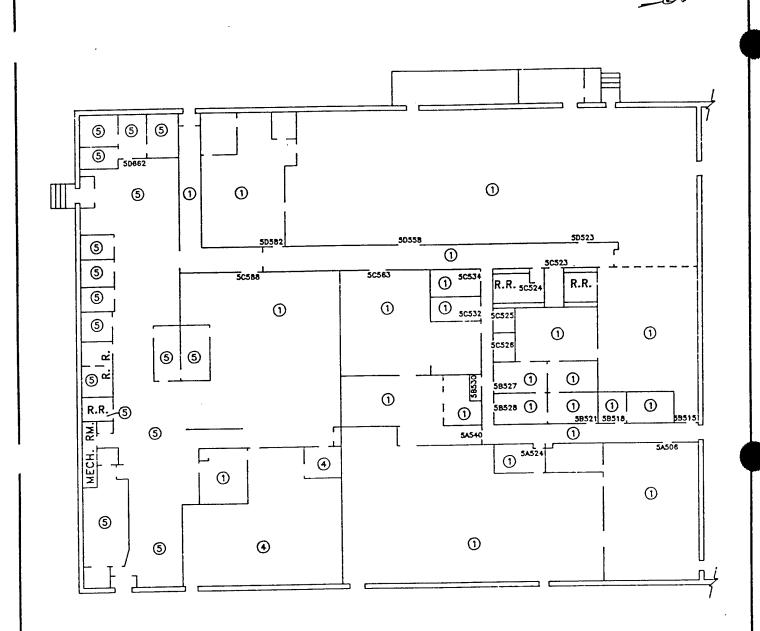
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Woodward-Clyde Federal Services

LOCATION	Cameron	Station,	Alexandria,	Virginia

BUILDING 5 — BAY 3 ATTIC SAMPLE LOCATIONS

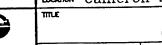
PROJECT NO. DRAWN BY: LAL DATE: 5-24-91 DWG. NO. 3001-210 CHECKED BY: F.B.G. SCALE: N.T.S. 5/3A-SL



- 1 2' x 4' SMOOTH FIBERGLASS TILE
- 4 2' x 4' RANDOM HOLE TILE
- (5) 12" x 12" UNIFORM HOLE TILE

CLENT USATHAMA

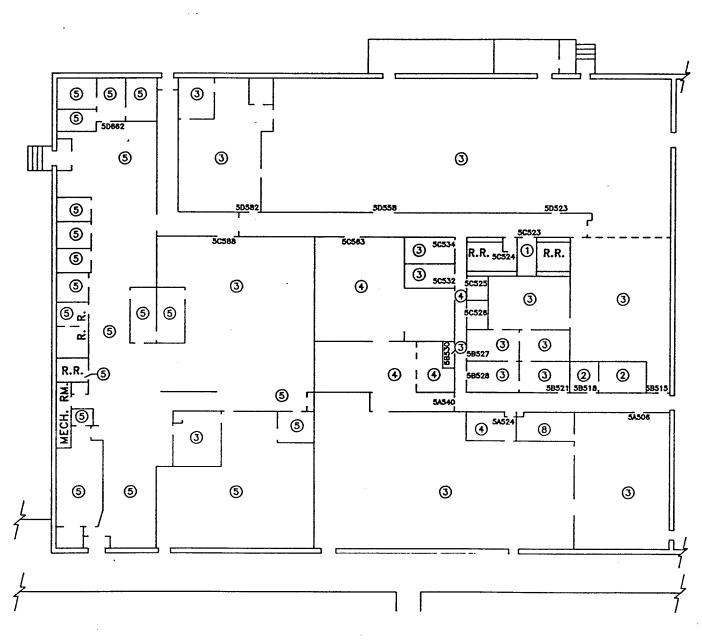
Woodward-Clyde Federal Services



TILE BUILDING 5 - BAY 3

CEILING TYPE LOCATIONS

PROJECT NO. DRAWN BY LAL DATE: 5-24-91 DWG. NO. 5/3-CT



- 1 9" x 9" TAN
- 2 9" x 9" BROWN
- (3) 9" x 9" GRAY
- 4 12" x 12" BEIGE
- (5) 9" x 9" GREEN
- (8) 12" x 12" BLACK

USATHAMA

JENT

Woodw	ard-Clyde
Federal	Services

LOCATION Cameron Station, Alexandría, Virginia

BUILDING 5 — BAY 3

FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	LAL.	DATE:	5-24-91	DWG. NO.	- /
3001-210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.		5/3-11

APPENDIX 5-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Station				Walkthrough Survey . A Sheet 1 o
Building #5	·Ì	EXTERIOR	IOR	Inspector Date 1/14/91 ex aff.
Exterior Siding				Attics 3/1-5/8.
Masonry [E Steel/A	Steel/Aluminum	Wood	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	_ Soffit □			
Sample Y N vico	Condition G	F P	Quantity SF	
Roof Shingle (asphalt/fiberglass) □	かいかし Tar & Felt 日	Steel Panel	Fiberglass Panel	Other
Sample Y (N)	Condition G	Ę.	Quantity 130, and	SF
Exterior Mechanical Systems	Sample	Condition	Quantity	Location
Vent pipe 4	X ®	GFP		
Chimney	N X	G F P		
Louvers 🔟	V (S)	G F P		
A/C Units E	V (S)	G F P		
Other	z >	G F P		
		S	STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams [b-	Wood Columns	Steel Column [B]	Concrete Column []
Sample Y (N	Condition G	E E	Quantity	SF
Sample \mathbf{Y}	Condition G	E4	Quantity	SF
Firewalls - Steel	Masonry 🖾		Firedoor	
Sample Y (N)	Condition G	e.	Quantity	SF
				Woodward-Clyde Federal Services

DATICAL CANCET ALA CRECTOR STID

2 of 4

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building &					Inspector/Date: //	/14	
	ΩI #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
						·	
Breeching							
Rn 5.3 352		``		tronelled	`\	B	N 20051
Furnace						·	
Tanks/Vessels							
Flec./Telephone							
				٠			
							-
Other						٠	
*Type of Insulation:							

Premold
 Blanket
 Aircell
 Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

3 of

HVAC

Cameron Stati

Ruilding					Inspector/Date:	r/Date:		
	. Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Bax1-3 9 Hic	>	70	X				
Pine	Devs 1-3 office	>	FC	N				
2								
							ļ	
Fittings	Fn 58352	``	mud	_	a	2011	¥	3"-12" getten
	44 Ba V.	>	Juny	>	2	1 200	#)
	72.3							
Other								
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	1			•				
*Type of Insulation: 1. Premold 2. Blanket	n: 5. Trowelled-on 6. Mud	Ton	Tout dalank.	on enclo	on enclosed FG inoulades	onladed my	" + " - "	" Jul

Woodward-Clyde Federal Services

Trowelled-on
 Mud
 Other

Premold
 Blanket
 Aircell
 Fiberglass

INTERIOR - CEILING/W.,LLS/FLOORS/MISC.

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late: 1/14/91	Condition G F P	pood	Sal	1300/5	Genel.	good	9006	geod	6000	good	ø	good	society Society	good	þ	
Inspector/Date:	Sample Y N	165	2/2	5/8	ges	458	ر دو د	2 2	2	468	7	yes	aro	o Les		
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	Color/Pattern	parnled / smooth	Ansolation	white from texture	white landom hate	white/withm hate	4000	hound	ONE	Kersi	green	with	Odm	blast		
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1 aterialWalls2x4 tileGypboard/Drywall2x2 tilePlaster1x1 tileOther1x2 tilePlasterOtherOther

4110 UCAULAGO 17 AUGO 10 ...

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services

et 4 of 4

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Inspector/Date: Building

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Sample Y N	>	7		X		- ×						
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Color/Pattern												
Material*	0	The sum Same - Reputation		7, 70	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Occin Land me toused	1 6	C A CANADAS				

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet Woodward-Clyde Federal Services

November 19, 1990

APPENDIX 5-E LABORATORY CERTIFICATE OF ANALYSIS

and the material and take added 3

CERTIFICATE OF ANALYSIS

Woodward-Clyde Pederal Services

1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91

Person Submitting: D.M. BARNES

MICROSCOPY LIGHT POLARIZED H 0 SUMMARY

		COMMENT														
	ANALYST	**QI	႘	ន	ន	ខ្ល	႘	႘	ខ្ល	႘ၟ	႘ၟ	ខ្ល	8	႘ၟ	႘	ន
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/ / I		OTHER	!	1	₽	01-05	1	₽	!	1	₽	₽	7	₽	₽	
S MATERI	MINERAL FIBROUS ORGANIC	FIBERS	05~10	05-10	₹	₹	10-15	₽	01-05	10-15	₹	₽	₽	7	7	10-15
R FIBROU	FIBROUS	GLASS	7	01-05			1	1	1	~1		1	1	1	1	01-05
/ OTHER FIBROUS MATERIAL &/	MINERAL	WOOL		1	1	1	1	1	1	1	1	1	1	1	1	}
/	ANTHOP-	HYLLITE	!	1	1	1 1	!	1 1 1	1	1 1 1	1	!	!	!	1	!
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//	CHRYSO-	TILE AMOSITE	1	!	01-05	01-05	!	05-10	:	;	01-05	01-05	01-05	01-05	01-05	
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COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

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This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratones, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.







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CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services 1 Church St. Suite 404

Rockville, MD 20850 Attn: Sally Gaurdia

: Cameron Station Job Site Bldg #

Job Number: 3001

: 01/26/91 : 02/19/91 Date Analyzed Date Sampled

Person Submitting: D.M. BARNES

MICROSCOPY LHGHT POLARIZED **户** SUMMARY

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COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

* ASBESTOS NOT OBSERVED

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Compared by SWC ordinary Little for SWC

Y

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 5 Job Blte : Cameron Station

Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91
Person Submitting: D.M. BARNES

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MICROSCOPY

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SUMMARY

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COMMENTS: * P = ASBESTOS PRESENT ** ANALYST ID CODE (SEE LAST PAGE)
N = ASBESTOS NOT OBSERVED

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Year of partial sacredited tableations

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services 1 Church St. Suite 404

Rockville, MD 20850 Attn: Sally Gaurdia

Bldg # : 5
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/26/91
Date Analyzed : 02/19/91

Person Submitting: D.M. BARNES

MICROSCOPY LIGHT POLARIZED 日0 SUMMARY

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Insulation Samples. Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk

** ANALYST ID CODE (SEE SIGNATURE)

ASBESTOS NOT OBSERVED

COMMENTS: * P = ABBESTOS PRESENT

G. Edward Carney (GC)

LAST PAGE OF

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter because the persons submitting them and, unless collected by personnel of these material price without price without price without price without production from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

Woodward-Clyde Federal Services May 15, 1991 Page 2 of 3

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically. A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq 5:1$ and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

Woodward-Clyde Federal Services May 15, 1991 Page 3 of 3

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely, AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos Electron Microscopist

Robert M. Powell Laboratory Director

LHB/kec

APPENDIX 5-F SAMPLE CHAIN-OF-CUSTODY FORMS

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 2 47 167

Woodward-L sderal Services c/o Charles L. ..mett EACA, RPHO, Bldg. 17 Cameron Slution Aexandria, VA (703) 274-6548

Field Office:

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ederal Services Woodward-Clyd

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project no. 3001 Installation (2): CM Sample Pragram (3): BEI Laboratory (2): PC

COC By: DY P

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c/o Chares brummett
EACA, RPMO, BIdg. 17
Comeron Strüen
Akxandrio, VA
(703) 274-6548 Field Office:

Woodward-Chyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

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COC By: 2 M2 Les

Woodward—C ederal Services c/o Charles .mett EKCA, RPMO, Bldg. 17 Cameron Station Aexandria, VA (703) 274—6548 Field Office:

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project iv. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: 1/21/5

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Sample Date: 27.156191

Woodward- ederal Services c/o Charles Brummett EACA, RPMO, Bidg. 17 Cameron Stution Alexandria, VA (703) 274-6548 Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

								
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White: P6& Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

Signature:

Accepted by: Woodward-Clyde

Comments: Date:

Accepted by: Race Lab, Inc.

Relinquished, by: Woodward-Clyde

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Been Lab, the.

Relinquished by:

Comments:

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project ivo. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: 1/1/21/2

Woodward-ederal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Cameron Station Alexandra, VA (703) 274-6548 Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: DMJC

Woodward Jeroil Services c/o Charles Comment EACA, RPMO, Bidg. 17 CACATOR Station Alexandria, VA (703) 274-6548 Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800 Field Office:

Admin. Office:

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project 1... 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

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Woodward—C. deral Services c/o Charles L. ...mett EACA, RPMO, Bidg. 17 Comeron Steban Aexandria, VA (703) 274—6548 Field Office:

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Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

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Woodward-Clyde Federal Services

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyde Fr ral Services

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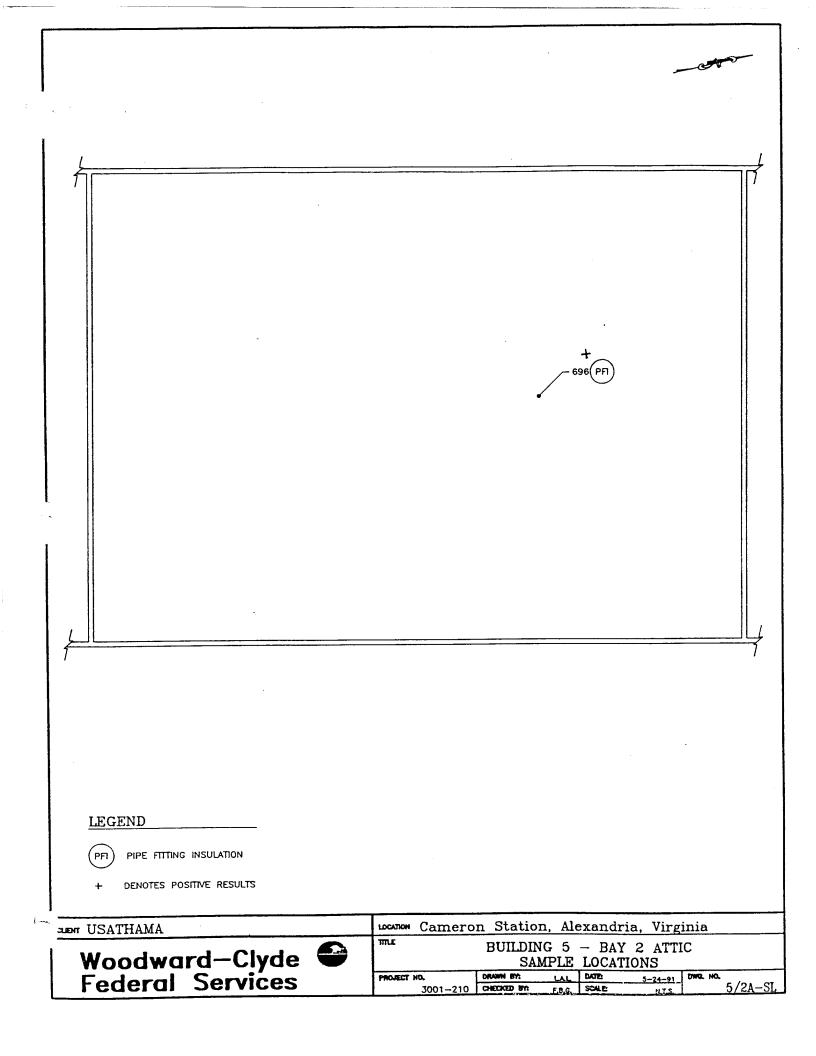
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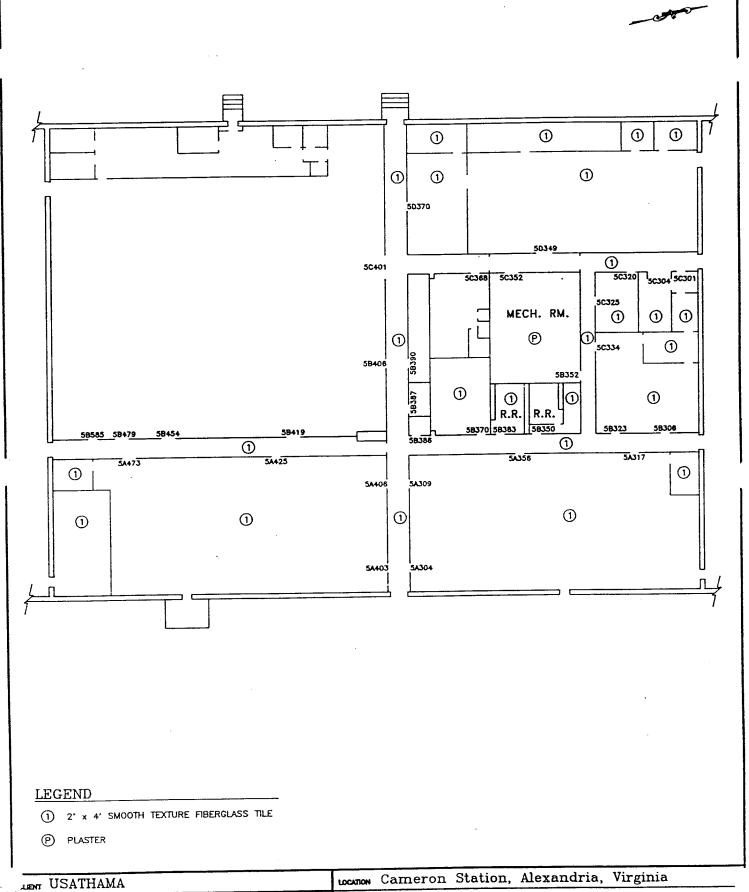
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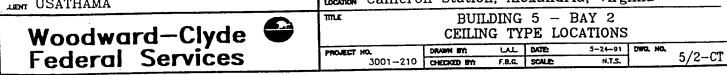
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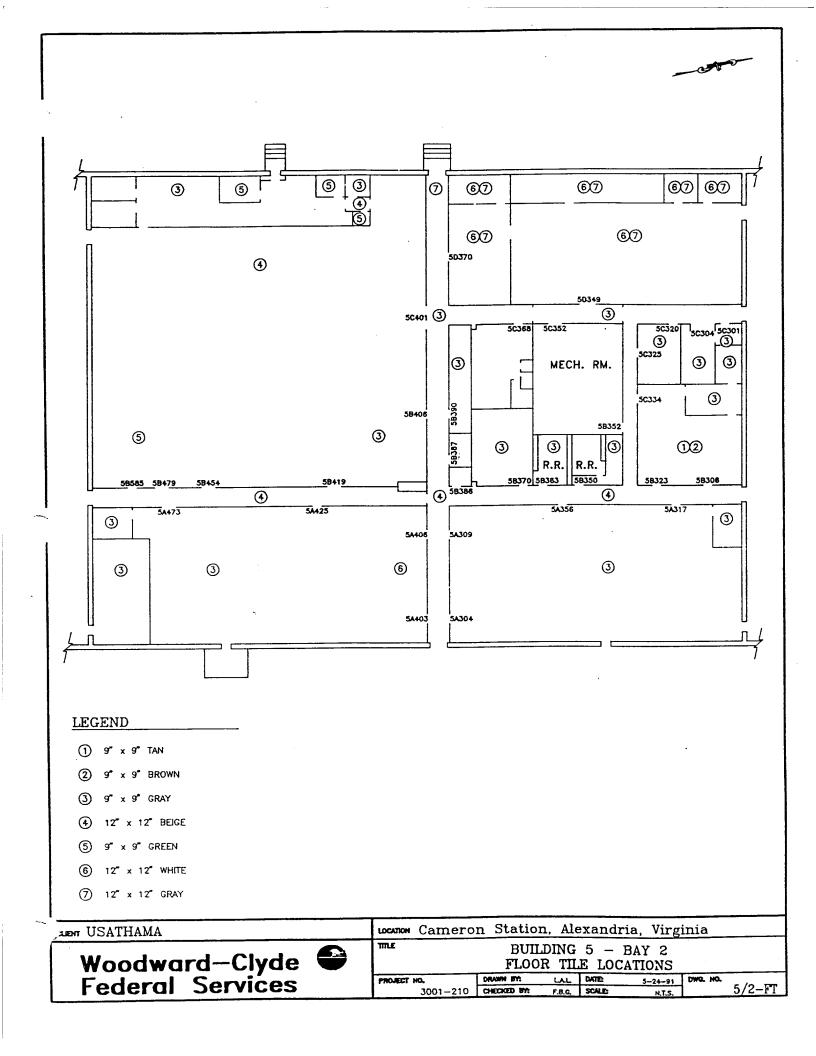
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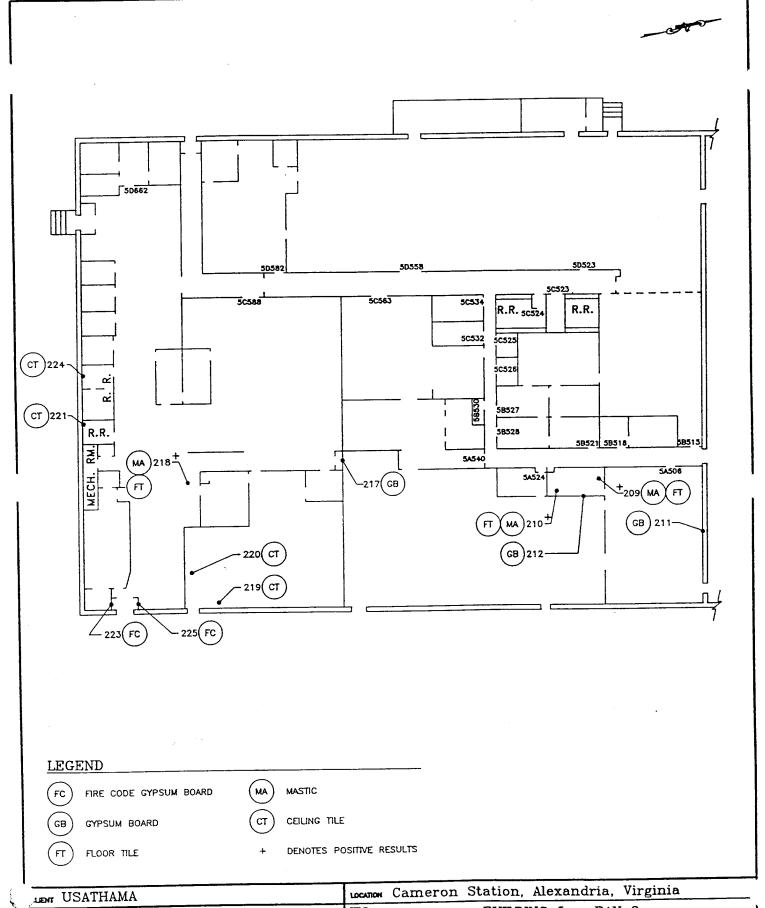
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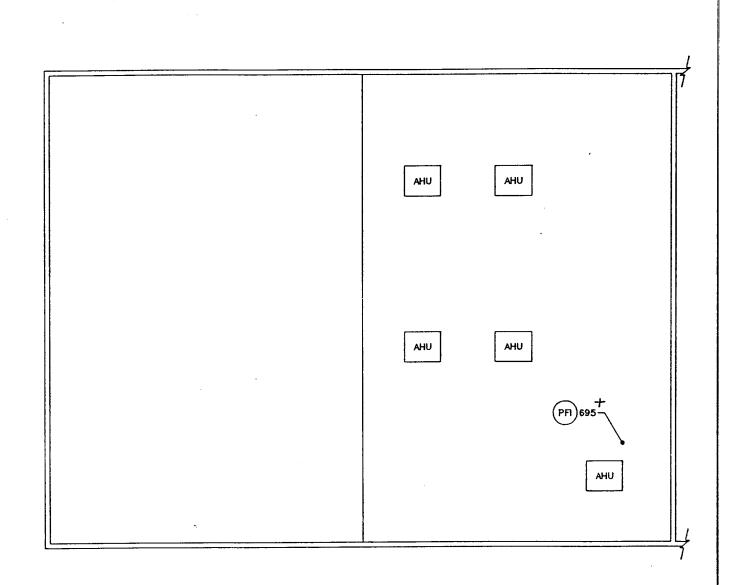














PIPE FITTING INSULATION

AHU AIR HANDLING UNIT

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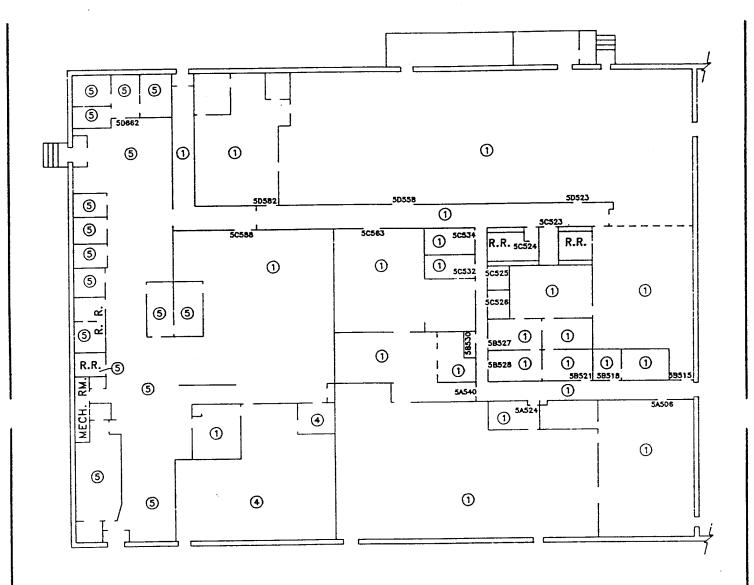


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BUILDING 5 - BAY 3 ATTIC SAMPLE LOCATIONS

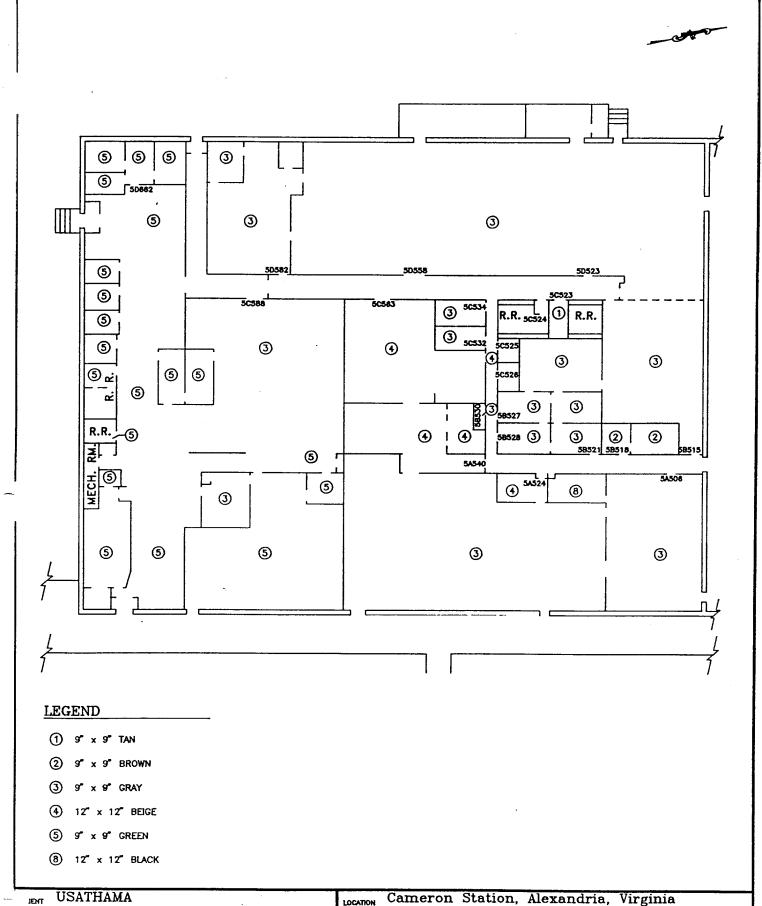
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- 1 2' x 4' SMOOTH FIBERGLASS TILE
- 4 2' x 4' RANDOM HOLE TILE
- 5 12" x 12" UNIFORM HOLE TILE

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BUILDING 6

6.1 DESCRIPTION

Building 6 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar, felt and gravel over wood. It is divided into three bays by masonry firewalls. Originally built as a warehouse, it has been partially converted to offices with a separate attic area housing the building HVAC system. Building materials typically found on the main floor include carpet over floor tile, ceiling tile and regular and fire code gypsum board. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Bays one and two are occupied by the Defense Logistics Agency (DLA) and the Army and Air Force Exchange Service (AAFES); the U.S. Army Recruiting Support Command (USARSC) occupies Bay three.

6.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 6-A through 6-F. A summary of this data is presented below.

6.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and ten bulk samples, including two QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material:

Pipe fitting insulation

Assessment of this material, which is found in one functional space, indicates a damage factor of 7 and an exposure factor of 17. According to the GAHA Index, this material ranks as Priority B.

6.2.2 Suspect Nonfriable ACM

Twenty-two homogeneous areas of suspect nonfriable ACM were identified and fifty-six bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following nine materials:

- Joint sealant
- Corrugated cement board
- FT 1 9" x 9" white floor tile and mastic
- FT 2 9" x 9" gray floor tile and mastic
- FT 3
 9" x 9" green floor tile and mastic
- FT 4 12" x 12" white floor tile and mastic
- FT 8
 9" x 9" black floor tile and mastic
- FT 10 12" x 12" blue floor tile and mastic
- FT 12 9" x 9" brick pattern floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

6.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and the vibration cloth, are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

6.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and reclassified as nonsuspect:

- CT 3
 2' x 4' fiberglass ceiling tile
- CT 5 12" x 12" fiberglass ceiling tile

6.4 AREAS NOT ACCESSED

The following areas in Building 6 were not accessed:

- Three rooms in AAFES section of Bay 1 (refer to Drawing 6/1-SL for specific locations).
- Room along west wall between Doors 23 and 24 in Bay 2.

6.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
6		100 MF	

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

6.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 6-A ACM Survey Results

Appendix 6-B Assessments/Recommendations for Friable ACM

Appendix 6-C Building Drawings

Appendix 6-D Walkthrough Survey Data Sheets

Appendix 6-E Laboratory Certificate of Analysis

Appendix 6-F Sample Chain-of-Custody Forms

APPENDIX 6-A ACM SURVEY RESULTS

ACM Survey Results for Building 6

	Comments			Sample 393 is a QC for sample 392.	Sample 372 is a QC for Sample 371.	This material is found on ends and seams of fiberglass-insulated pipes and ducts. The estimated emount is based on the quantity of insulation on which it is found.
	Sample Results (% and type of asbestos)	Assume ACM	Assume ACM	None detected None detected None detected None detected	1-5% amosite 1-5% amosite 1-5% amosite 1-5% amosite 1-5% amosite None detected	1-5% chrysotile <1% chrysotile
	Sample #	Assume ACM	Assume ACM	012 391 392 393	371 372 373 388 389 390	832 833
tity .	Unit of Measure- ment (SF, LF or # of fittings)	SF	R F	R F	# of fittings	Γ.
Quantity	Estimated Amount	130000	160	1000	00	28000
	Condition (Good, Fair, or Poor)	Bood	Good	Poor	Poor- Good	poog
	Friability (Non, Low, Mod. or High)	Non	Non	High	Low. High	r o N
	Location (where material is found)	Roof	Bays 1 and 3, on AHUs in attic areas	Bay 1, AHU #7, Door 28,	Bays 1, 2 and 3, attic areas	Bays 1, 2 and 3, attic areas
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt	Vibration cloth	Trowelled-on duct insulation	Pipe fitting insulation	Joint sealant
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	TSI	TSI	TSI
	Homogen- eous Sample Area	-	2	m ·	4	ഥ

Woodward-Clyde Federal Services July 2, 1991

ACM Survey Results 101 Building 6 (continued)

	Comments		9" x 9" white floor tile	9" x 9" gray floor tile	9" x 9" green floor tile
		•	F	FT 2	F 3
	Sample Results (% and type of asbestos)	30-35% chrysotile 30-35% chrysotile	1-5% chrysotile 1-5% chrysotile	5-10% chrysotile 1-5% chrysotile	1-5% chrysotile 1-5% chrysotile
	Sample #	413	363 366	405 406	369 374
tity	Unit of Measure- ment (SF, LF or # of fittings)	π.	R F	R F	r R
Quantity	Estimated Amount	8800	12650	1500	4470
	Condition (Good, Fair, or Poor)	Poog	PooS	Poog	Poo S
	Friability (Non, Low, Mod. or High)	Non	r o v	Non	с 0 2
	Location (where material is found)	Bay 1, Awning over loading dock	See Drawings 6/1-FT 6/3-FT	See Drawing 6/1-FT	See Drawings 6/1-FT 6/3-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Corrugated cement board	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Mis c.
	Homogen- eous Sample Area	ဖ	7	ω	თ .

ACM Survey Results 1. Building 6 (continued)

	Comments	FT 4 12" x 12" white floor tile	FT 5 2' x 2' white floor tile	FT 6 12" x 12" gray floor tile	FT 7 12" x 12" mauve floor tile	
	Sample Results (% and type of asbestos)	<1% chrysotile 1-5% chrysotile	None detected None detected	None detected None detected	None detected None detected	
	Sample #	352 355	411	407	409	
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	şs	R	S.	R	
Quantity	Estimated Amount	29730	1000	200	100	
	Condition (Good, Fair, or Poor)	рооб	poog	Good	Good	
	Friability (Non, Low, Mod. or High)	Non	Non	Non	NoN	
	Location (where material is found)	See Drawings 6/1-FT 6/3-FT	See Drawing 6/1-FT	See Drawing 6/1-FT	See Drawing 6/1-FT	
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	
	Homogen- eous Sample Area	01	=	12	13	

1	The state of the s					
	Comments	FT 8 9" x 9" black floor	FT 9 12' x 12' brown floor tile	FT 10 12" x 12" blue floor tile	FT 11 12" x 12" green floor tile	
	Sample Results (% and type of asbestos)	1-5% chrysotile 1-5% chrysotile	None detected None detected	1-5% chrysotile 1-5% chrysotile	None detected <1% chrysotile	
	Sample #	364 365	375 376	378 379	357 358	
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	R.	R.	ω π	
Quantity	Estimated Amount	1070	2330	400	330	
	Condition (Good, Fair, or Poor)	Good	рооб	poog	Good	
	Friability (Non, Low, Mod. or High)	S C O	Non	Non	Non	
	Location (where material is found)	See Drawing 6/3-FT	See Drawing 6/3-FT	See Drawing 6/3-FT	See Drawing 6/3-FT	
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	
	Homogen- eous Sample Area	14	15	16	17	

	Comments	FT 12 9" x 9" brick pattern floor tile	CT 1 2' x 4' white w/fissures	CT 2 2' x 4' white w/rendom holes	CT 4 2' x 4' white w/smooth texture		•
	Sample Results (% and type of asbestos)	1-5% chrysotile 1-5% chrysotile	None detected None detected	None detected None detected	None detected None detected		
	Sample #	380 381	359 360	394 395	356 377		
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	π π	п П	R.		
Quantity	Estimated Amount	2600	47500	2000	1500	,	
	Condition (Good, Fair, or Poor)	Good	Good	goog	poog		
	Friability (Non, Low, Mod. or High)	Non	Non	N O O	Non		
	Location (where material is found)	See Drawing 6/3-FT	See Drawings 6/1-CT 6/2-CT 6/3-CT	See Drawing 6/1-CT 6/2-CT	See Drawing 6/3-CT		
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Ceiling tile	Ceiling tile	Ceiling tile		
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.		
	Homogen- eous Sample Area	18	<u>0</u>	50	21		

	Comments	CT 6 12" x 12" white w/random holes	CT 7 12" x 12" white w/uniform hole	CT 8 12" x 12" white w/smooth texture	CT 4 2' x 4' white w/smooth texture	Sample 400 is a QC for Sample 398	
	Sample Results (% and type of asbestos)	None detected None detected	None detected None detected	None detected None detected	None detected None detected None detected None detected None detected	None detected None detected	
	Sample #	386 387	384 385	382 383	354 367 367 368 397 398	399	
tity	Unit of Measure- ment (SF, LF or # of fittings)	SF	SF	R.	r.		
Quantity	Estimated Amount	100	100	300	93000		
	Condition (Good, Fair, or Poor)	Poog	Poog	Good	р 0 0		
	Friability (Non, Low, Mod. or High)	No N	No N	Non	c N		
	Location (where material is found)	See Drawing 6/3-CT	See Drawing 6/3-CT	See Drawing 6/3-CT	Hallways & entry areas throughout bldg. 6/3-CT		
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Ceiling tile	Ceiling tile	Fire code gypsum board		
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.		
	Homogen- eous Sample Area #	22	23	24	25		
11	1						

ACM Survey Results 1. Building 6 (continued)

	Comments	Sample 404 is a QC for Sample 403
	Sample Results (% and type of asbestos)	None detected None detected None detected None detected None detected None detected None detected
	Sample #	353 362 370 396 401 402 403 404
tity	Unit of Measure- ment (SF, LF or # of fittings)	F S
Quantity	Estimated Amount	50000
	Condition (Good, Fair, or Poor)	рооб
	Friability (Non, Low, Mod. or High)	Non
	Location (where material is found)	Interior walls: Throughout building Ceilings: See drawing 6/2-CT 6/3-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Regular gypsum board
Material	Category (surfacing TSI or misc.)	Misc.
	Homogen- eous Sample Area	56

APPENDIX 6-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 6

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	ω
	Exposure Factor	. 17
	Damage/Risk Factor	7
Material Description	Type (e.g. pipe fitting insulation)	Pipe fitting insulation
Materi	Category (surfacing TSI or misc.)	TSI
	Homogen- eous Sample Area	4
	Functional Space	6-1 Bays 1, 2 and 3, attic areas

Woodward-Clyde Federal Service July 2, 199

Checklist
Assessment
Asbestos
able

Inspector/Date (Franco) Granella 3/6/91

Material Type(s) Prese felling monthston

(Any 1683 ` ა Functional Space_

Homogeneous Sample Area #(s)

Building_

Cameron Station

Part 1: Damage/Risk

4 Moderate; 5 High;

0 None (2) Low; 1 Minimal;

• Visible evidence of physical damage:

3 Yes;

Water damage:

°N ©

A. Sprayed- or trowelled-on:

<1 ft. or ceiling panel contaminated; 2 $1 \le ft < 5$; $1 \ge 5$ ft; $0 \ge 5$ ft & no routine maintenance

• Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

Pipe, boiler or duct insulation:

œ.

3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

0-4 Other friable material; (1) Boiler/pipe; 3 HVAC;

4 Ceilings/walls

Potential for Contact based on material proximity to area occupants:

< 10 ft: Ŕ

5 Medium; (2) Low 8 High;

≥ 10 ft:

œ.

5 High; 3 Medium; 0 Low

• Asbestos content: Use percentage for material with highest probability for becoming airborne:

NO HAZARD Samples contain no asbestos 5 > 50%; $3 30 < \% \le 50$; (1) 1< % \leq 30;

Sample Numbers:

390 3.73 373 372.

Damage/Risk Total

Woodward-Clyde Federal Services

November 19, 199(

Inspector/Date Banus/Guanus 2/6/4,	Material Type(s) Dem filling unreal allen	
6		2183 (star soles
Building	e Area #(s) 4	6-1 Bay
Cameron Station	Homogeneous Sample Area #(s)_	Functional Space

Part 2: Exposure

> 1000 ft,

- Friability: (6 High; (3) Moderate; 1 Low
- Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $\implies 10 \le \text{ ft}^2 < 100$; $\binom{2}{2} 100 \le \text{ ft}^2 < 1000$;
 - Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
 - (4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
- <u>Ventilation</u>: (Mark all categories that apply; maximum of 7 points.)
- 5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; ① None of the above
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
- <u>Activity</u> (Refers to forces such as vibration, water or steam acting on material.)
- 5 High (constant vibration); (2) Medium (occasional vibration); 0
- 0-4 Unique situation (e.g., dirt floor) 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface;
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
- A. Sprayed- or trowelled-on ceiling or walls
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4
- B. Pipe, boiler, duct or other material percent of total exposed and visible to occupants
- $(1) \le 25\%;$ 2 25 < % \le 50; 3 50 < % \le 75; 4 75 < % \le 100

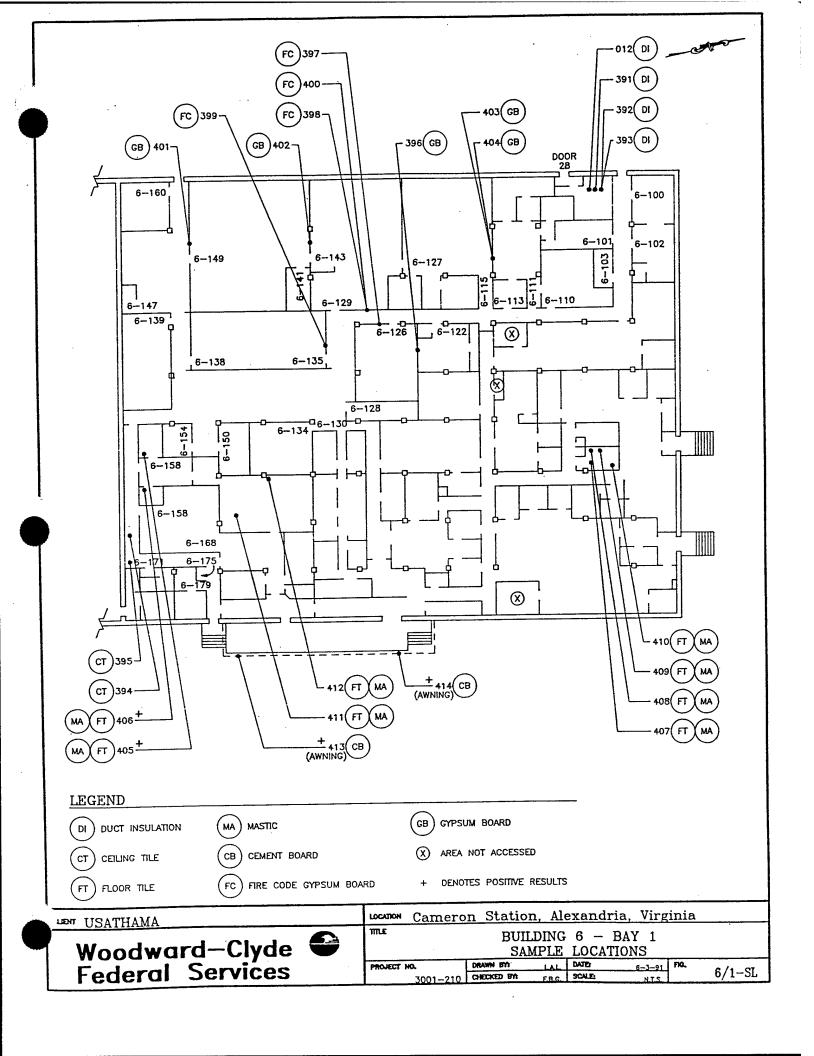
Exposure Total

- $3 201 \le \text{pop} \le 500$ • Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$;
- ≤ 500 4 501 \leq pop \leq 1000;
- Woodward-Clyde Federal Service

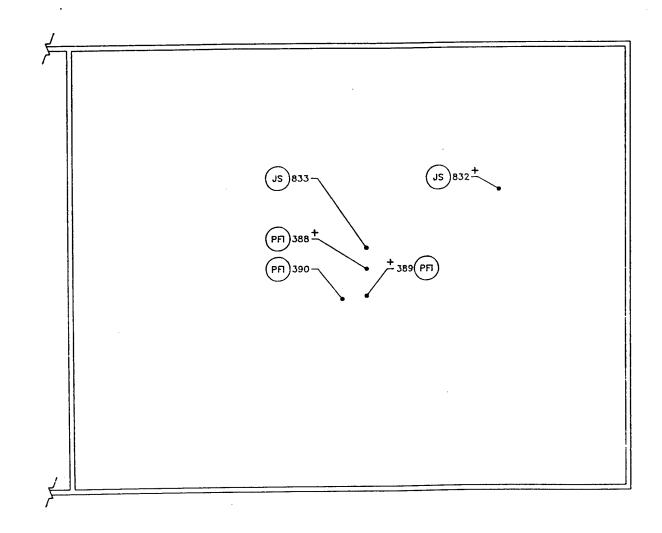
5 > 1001 or medical/youth centers/residential

November 19, 199

APPENDIX 6-C BUILDING DRAWINGS







- (PFI) PIPE FITTING INSULATION
- JS JOINT SEALANT
- + DENOTES POSITIVE RESULTS

JENT USATHAMA

Woodward-Clyde Federal Services



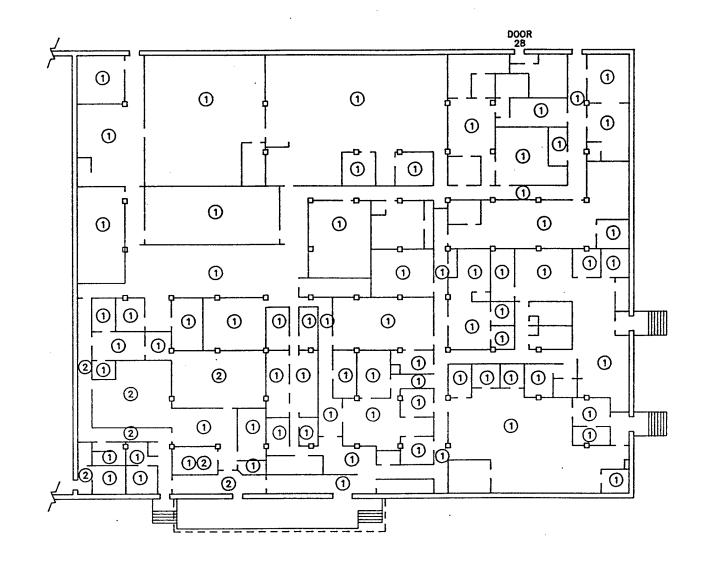
LOCATION	Cameron	Station,	Alexandria,	Virginia

BUILDING 6 — BAY 1 ATTIC

SAMPLE LOCATIONS

ROJECT NO. DRAWN BY 1 LAL DATE 6-3-91 FX

PROJECT NO. DRAWN SYN LAL DATE 6-3-91 FIG. 6/1A-SL



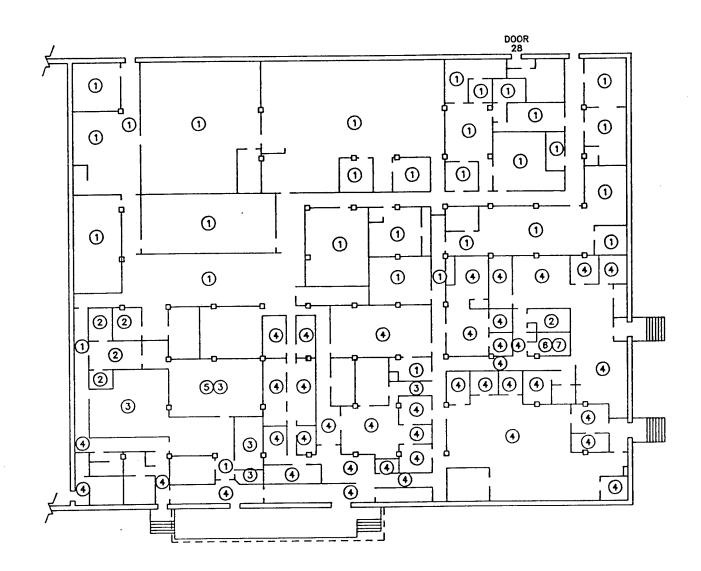
- 1) 2' x 4' WHITE FISSURED TILE
- (2) 2' x 4' RANDOM HOLE TILE

CLIENT USATHAMA

Woodward-Clyde **E** Federal Services



LOCATION	Cameror	Station,	Ale	xandria,	Virgi	nia		
TITLE				6 - BAY	-			
	CEILING TYPE LOCATIONS							
PROJECT I		DRAWN SY:	LAL	DATE:	8-3-91	DWG. NO. 6/1-CT		
2	3001-210	OLICOVED DA	FRC	DOM C.	NTC	J		



- 1 9" x 9" WHITE
- (2) 9" x 9" GRAY
- (3) 9" x 9" GREEN
- (4) 12" x 12" WHITE
- (5) 2' x 2' WHITE
- (6) 12" x 12" GRAY
- (7) 12" x 12" MAUVE

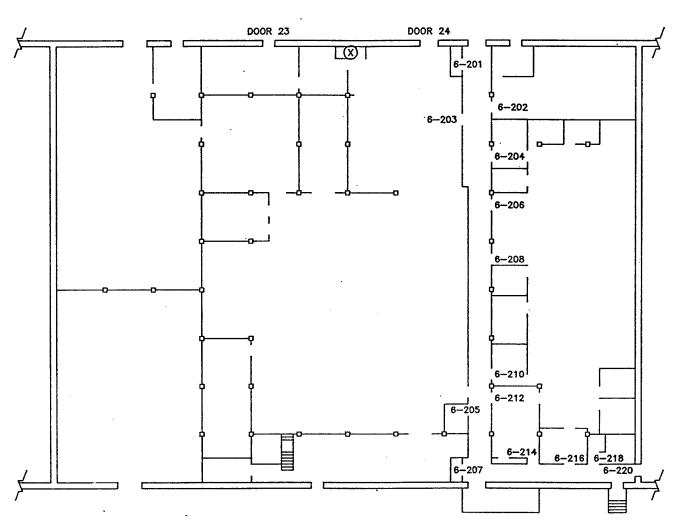
CLIENT	US.	ATH	AMA
--------	-----	-----	-----

Woodward-Clyde Federal Services



LOCATION Cameron	Station,	Alexandria,	Virgir	iia	 _
IIILE		NG 6 - BAY			
		11 100		DWC NO.	 _

PROJECT NO. DRAWN BY: LAL DATE: 6-3-91 DWG. NO. 6/1-FT CHECKED BY: F.B.C. SCALE: N.T.S.



NOTE:

NO SAMPLES COLLECTED IN THIS BAY

LEGEND

X AREA NOT ACCESSED

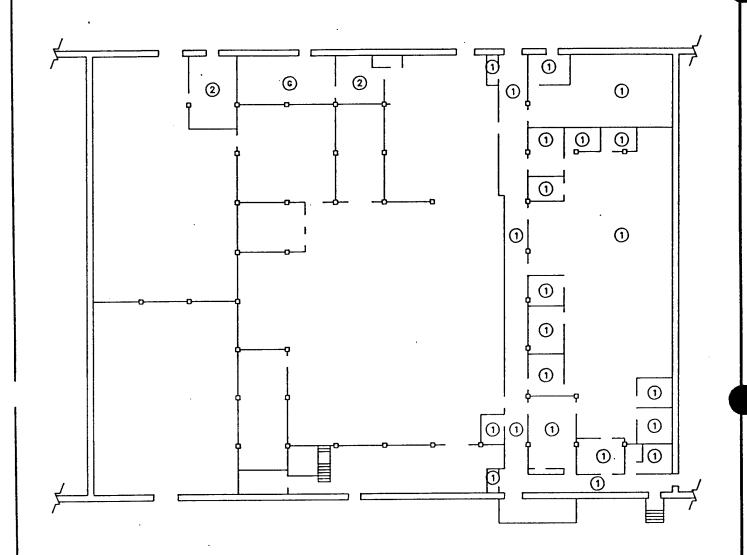
CUENT USATHAMA

Woodward-Clyde Federal Services

LOCATION	Cameron	Station,	Alexandria,	Virginia

BUILDING 6 - BAY 2 SAMPLE LOCATIONS

PROJECT NO. DRAWN BY: LAL DATE: 8-3-91 DWG, NO. 3001-210 CHECKED BY: F.B.C. SCALE: N.T.S. 6/2-SL



- 1 2' x 4' WHITE FISSURED TILE
- 2 2' x 4' RANDOM HOLE TILE
- © GYPSUM BOARD

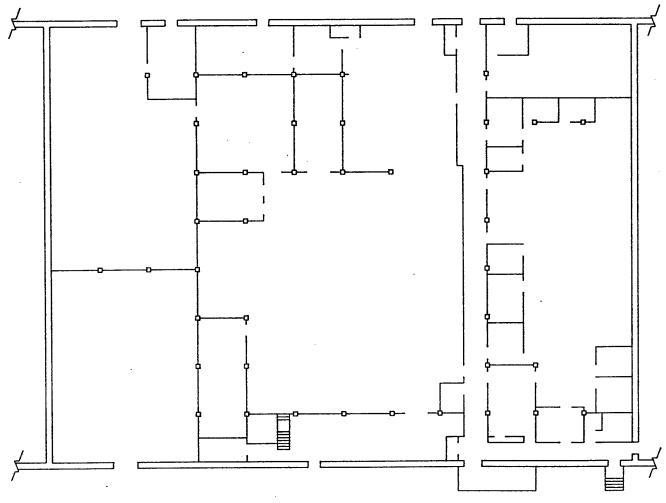
CUENT USATHAMA

Woodward-Clyde Federal Services



LOCATION	Camero	n Statio	n, Ale	exandria	, Virg	ginia	
MLE		BUII	DING	6 - BA	Y 2		•
		CEILIN	IG TY	PE LOCA	MOIT	3	
PROJECT N	0.	DRAWN BY:	Į.AL	DATE:	6-3-91	DWG. NO.	6/2-CT
	3001-210	CHECKED BY:	F.B.C.	SCALE:	Z.T.M		0/2-01





NOTE:

NO FLOOR TILE IN THIS BAY

CLIENT USATHAMA

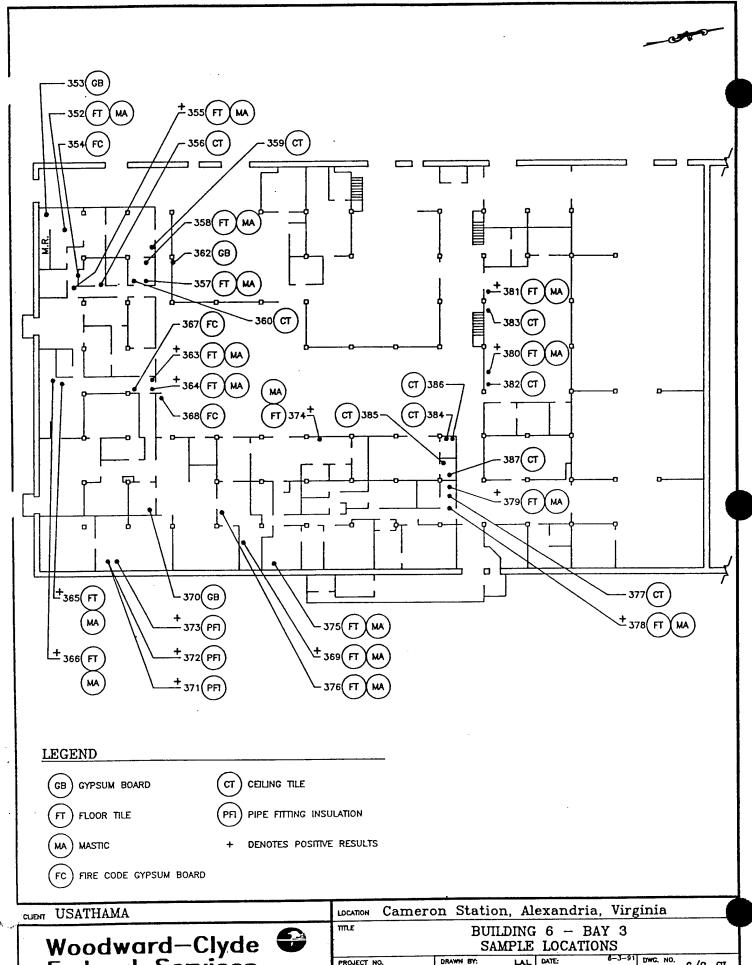
Woodward-Clyde Federal Services



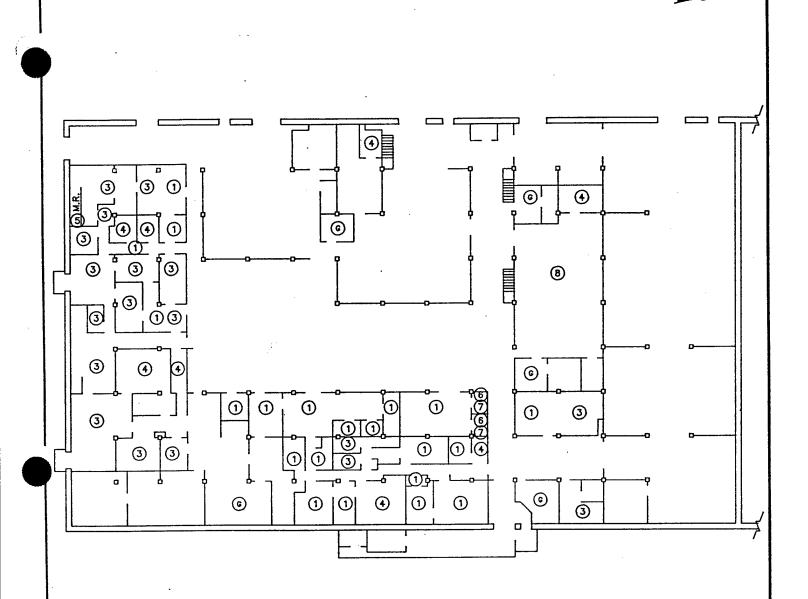
LOCATION	Cameron	Station.	Alexandria,	Virginia
	Camer on	Deadlon,	Alexandi la,	VII SIIIIM

TITLE BUILDING 6 - BAY 2 FLOOR TILE LOCATIONS

PROJECT NO.	DRAWN BY:	LAL	DATE:	6-3-91	DWG. NO. C /O TOP
3001-210	CHECKED BY:	F.B.G.	SCALE:	n,t.s.	6/2-F1



Woodward-Clyde Federal Services 6-3-91 DWG. NO. PROJECT NO. 6/3-SL3001-210 CHECKED BY:



- 1 2' x 4' FISSURED TILE
- (3) 2' x 4' FIBERGLASS TILE
- (4) 2' x 4' SMOOTH TILE
- (5) 12" x 12" FIBERGLASS TILE
- 6) 12" x 12" RANDOM HOLE TILE
- 7) 12" x 12" UNIFORM HOLE TILE
- (8) 12" x 12" SMOOTH TILE
- (G) GYPSUM BOARD

CLIENT USATHAMA

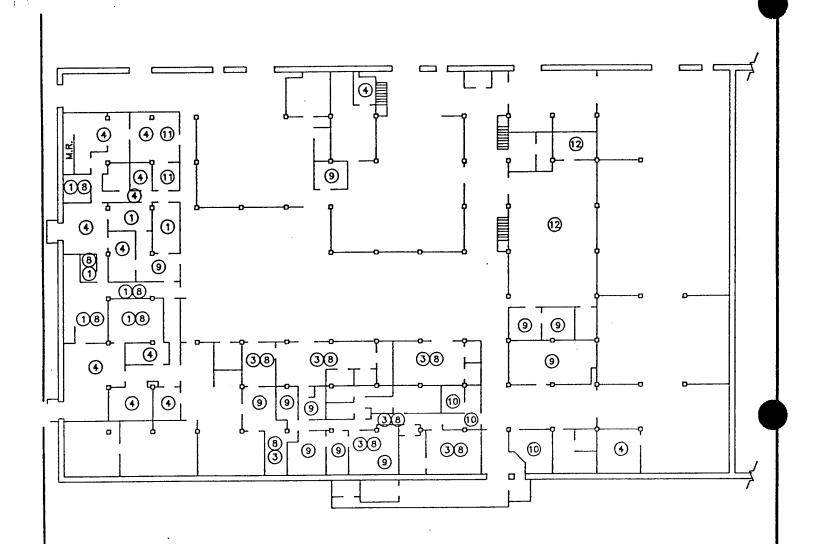
Woodward-Clyde Federal Services



		Virginia
TITLE	UILDING 6	

CEILING TYPE LOCATIONS

ROJECT NO. | DRAWN BY: | LAL | DATE: 6-3-91 | DWG. NO. |
3001-210 | CHECKED BY: F.B.C. | SCALE: | N.T.S. | 6/3-CT



- 1 9" x 9" WHITE
- 3 9 x 9 GREEN
- (4) 12" x 12" WHITE
- (8) 9" x 9" BLACK
- 9 12" x 12" BROWN
- (10) 12" x 12" BLUE
- (1) 12" x 12" GREEN
- 12 9" x 9" RED BRICK PATTERN

CUENT USATHAMA

Woodward-Clyde Federal Services



LOCATION Cameron	Station,	Ale	хa	nd	ria,	Vir	ginia
TITLE	BUILDI	NG	6		BAY	3	

	FLOO	R TIL	E LOCA	ATIONS	
PROJECT NO.	DRAWN BY:	LAL.	DATE:	6-3-91	DWG. NO E /3-FT
3001-210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.	0/3-11

APPENDIX 6-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Station				Walkthrough Survey Sheet 1 01 4
1	DAN / Bliffes/ Anny Hoomit	Hoomest EXTERIOR		Inspector Date General Commun.
Exterior Siding				
Masonry A Steel/A	Steel/Aluminum	□ poo _M	Asbestos Cement Shingle	Asphalt Shingle
Other # Consuccities Council over Soffit	ranctorer Soffiel	п		
Sample (Y) N	Sock Condition) F P	Quantity SPCT S	SF
Roof	Ž	addense		
Shingle (asphalt/fiberglass)	Tar & Felt	Steel Panel □	Fiberglass Panel	Other
Sample Y N	Condition	ŗ.	Quantity 130,000	SF
Exterior Mechanical Systems	Sample	Condition	Quantity	Location
Vent pipe	Z ×	GFP		
Chimney \square	X	G F P		
Louvers \Box	Z	G F P		
A/C Units d	X	GFP		
Other	Z ×	G F P		
		<u>rs</u>	STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	Wood Columns	Steel Column	Concrete Column
Sample Y	Condition G	A E	Quantity	SF
Sample Y N	Condition G	F P	Quantity	SF
Firewalls - Steel	. Masonry, Z		Firedoor	
Sample Y N	Condition G	G E	Quantity	SF
				Woodward-Clyde Federal Services

November 16, 19

ESTOS.SUR

D:\USA\CAMST\

2 01 4

Cameron Statio

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

N/A Inspector/Date: 60	Condition
N/A	Sample
N/A	Tyna
	A Tlaite
45.0	. T - T - T - E
125 JALK 1USH. 15	
Building #6	

						2011	Onantity
	ID #	Insulated Y	# Units	Type of Insulation*	Sample Y N	G F P	
						-	
Boiler							
					•		
Brooching							٠
niconing in the second						٠.	
9.00 mil							
Tanks/Vessels							
Flec /Telenhone							
						t.	
Other							
*Type of Insulation:							

1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

Cameron Static

HVAC

: :	V.				Inspector/Date:	r/Date:		
Building	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
		h	5,7	N				
Duct	OHICO 2X)	1. 11. 1	\ \>	Ø	2001	2/5	
	AHA 7		/ Vanessee 11					
	// /	}		Ì				
Pipe	Office		7					
		>	1	>	0-5	2011	朱	
Fittings	HT16-1275		2000					
						٠		
Other	1	>	of with propos	1 Stame		160		
	(24) (4)		C/0/Ch					·
*Tune of Inculation:								

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Building AS

dementances istales

Condition Quantity G F P	od ~ 12 650 SF	Jeru-05/ 1500 SF	9000 - 4470 Sr	Good . 4397:30 SE	9000/ 1000 31	900d 2005F	900C/ 100 S/C	500.00 10.70 5	400d 2330 SF	515 OOF Frank	330 SF	900 st				
Sample Co Y N G	46.5 9000	,	200	<i>4</i> 8 5 5 5	428	460		900		500		468)	No		
Location	Sre Man	50c 1/am	Ser 16.	S. 1/2,	Sre plan	Sec slan		Sec plan	Sec , Jan.	Sec valor	Src. 1600	/	/	Ban 3	,	
Color/Pattem	with	6ra,	Green	white .	1.40	Sey /	10000	Rack	Goor !	Blue	7 0000	Pal Boick		A NO.		
Material*	1. 4/ H/ 4"x9"								ŀ		`			/ / / / / / / / / / / / / / / / / / / /	10000	

		41
*Material	Ceiling	2x4 tile

2x2 tile 2x2 tile 1x1 tile 1x2 tile Plaster Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only

4 of 4

INTERIOR - CEILING, "ALLS/FLOORS/MISC.

5. 4.K	ANFES 1040/45.4.R.S.C.		Inspector/D	Inspector/Date: (ZULXO/H) SULME S	IRNES	
Color/Pattern	E	Location	Sample Y N	Condition G F P	Quantity	
white Hissured	/0	36C 7/6.	कर्म	Sono	~ 47 500 ss	
white Truston Hors	20/94	1	200	تحاصمط	~ 2000 50	
amte from believe		ト、	10 FG) desag	6800 5	ダノ
white Sought		1 (5 7 6 8) goo c'	~ 1500 38	
the first		Γ	1/2/22 2/2/22	1200	\$1035	から
which from 12 to		t '	য়। জ	poos	7800/ 7	
white/amilon hole	4		can,	30000	~ 100 5/2	
ante Smooth		Γ) Sector	Good	~ 380 SF	
		1	3			
Joseph		all hallways & entruss "	yes	poot	~ 92650 39 93000,	13000
117		0 3/1200 10000401	Sos	Good	~ 50,000 SF	•
				/2		
					•	

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services

November 19, 199

APPENDIX 6-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

on AlltA (# 33) and Edit F (#1143) Seredited Libertone

Woodward-Clyde Federal Services 1 Church St. Suite 404

Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

•• Bldg #

Job Site : Cameron Station Job Number: 3001

: 02/06/91 Date Sampled

Person Submitting: D.M. BARNES : 02/14/91 Date Analyzed

MICROSCOPY LIGHT POLARIZED 日 日 SUMMARY

COMMENT														
ANALYST ID**	82	A3	2	AB AB	2	2	2	XB	88	NB	AB	5 2	8	2
PARTICULATE	95-99	65-70	75-80	86-06	25-35	90-95	90-95	25-35	30-40	65-70	75-80	86-06	86-06	86-06
AL 4/				:	1	:			1	!	•	-	1	ŀ
s materi organic fibers	01-05	30-35	20-25	01-05	65-70	05-10	05-10	35-40	30-35	30-35	20-25	01-05	01-05	01-05
OTHER FIBROUS MATERLI MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS		!			01-05			30-35	30-35	₽	1	-		
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER		1		!	1	-	-			1		1	1	!
/	!	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	 	1	!	! ! !	1		1	-	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	1	!	!
IREMO- ACTIN- ANIHOP- LITE OLITE HYLLITE	į		!	!	!					1		!	!	
DS TREMO- LITE			!			1		:	1				1	
- ASBESTY CROCIDO- LITE		-		1	1 1 1	!	!		1	1	1			!
AMOSITE		!	-	1					-		1	-		
/CHRYSO- TILE A	₹	1	!	01-05	1		₹	!	1	1	1	01-05	01-05	01-05
ASBESTOS PRESENT*	Α	×	z	Α	z	z	Α	z	z	z	×	А	Д	ρι
SAMPLE ID	352	353	354	355	356	357	358	359	360	361	362	363	364	365

** ANALYST ID CODE (SEE LAST PAGE) N = ASBESTOS NOT OBSERVED * P = ASBESTOS PRESENT COMMENTS:

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the bublic that it is not to be used, in whole or in part, in any advertising or publicity that extension is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without price without price without prices. Incations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these without prices written authorization from us. Sample types, locations and collection protocols are based upon the information.

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AMA Analytical Services, Inc.

An All4A (#244) and IVVLAP (#1143) Accredited Laboratory

Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg #

: 02/06/91 : 02/14/91 Date Analyzed Date Sampled

Person Submitting: D.M. BARNES : Cameron Station Job Number: 3001 Job Site

MICROSCOPY LIGHT POLARIZED **山** SUMMARY

		COMMENT														
	ANALYST	ID**	2	2	8	2	8	2	2	2	2	2	AB	2	.	2
		PARTICULATE	86-06	85-90	75-80	86-06	85-90	55-59	50-54	50-54	85-95	85-90	85~90	15-20	86-06 '	86-06
NL 8/		OTHER	!	!		!	1	-	-	!	:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!	!	
S MATERI	ORGANIC	FIBERS	01-05	10-15	20-25	01-05	10-15	01-05	01-05	01-05	05-10	10-15	10-15	80-85	01-05	01-05
R FIBROU	MINERAL FIBROUS ORGANIC	GLASS	₽	1	-	1	1	1	!	!	1	1	:	7	1	! ! !
/ ASBESTOS &/ / OTHER FIBROUS MATERIAL &/	MINERAL	MOOL	1		1	1	!	35-40	40-45	40-45	1	1		1	1	
	ANTHOP-	HYLLITE	!!!!	! ! !	!!!!		ŧ		! ! !	1	1		!	1	1	1 1
	TREMO- ACTIN- ANTHOP-	OLITE	1	i			1	1	1	1	1			!		1
\$ SO		LITE	1			!	1		1	1	!		!	\$ 1 1 1	1	1
- ASBEST	CROCIDO-	LITE	-		!		!	1	1	!		!	!	1		
		AMOSITE	1	1	1	1	-	01-05	01-05	01-05	1	1	1	!	-	
//	CHRYSO-	TIPE	01-05	1		01-05		1	1	! !	01~05	1	1	1 1	01-05	01-05
	ASBESTOS	PRESENT*	ρι	z	z	Д	×	ы	P4	P.	Α	z	z	×	Р	Д
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COMMENTS: * P * ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

- ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter whotatories, this report is submitting them and, unless collected by personnel of these material prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

AMA Analytical Services, Inc.

An All4A (#244) and EWLAP (#1143) Accedited Laboratory



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site

Bldg #

: Cameron Station Job Number: 3001

: 02/14/91 : 02/06/91 Date Analyzed Date Sampled

Person Submitting: D.M. BARNES

MICROSCOPY LIGHT POLARIZED H 0 SUMMARY

		COMMENT														
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* P = ASBESTOS PRESENT COMMENTS:

** ANALYST ID CODE (SEE LAST PAGE)

- ASBESTOS NOT OBSERVED

This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these rather and including the accuracy and completeness of this information.





AMA Analytical Services, Inc.

An AHA (#244) and IAVLAF (#1143) Accredited Laboratory

U

Woodward-Clyde Federal Services

1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 6
Job Site : Cameron Station
Job Number: 3001

Date Sampled: 02/06/91
Date Analyzed: 02/14/91
Person Submitting: D.M. BARNES

MICROSCOPY LIGHT POLARIZED <u>Н</u>О SUMMARY

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** ANALYST ID CODE (SEE LAST PAGE)

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COMMENTS: * P = ASBESTOS PRESENT

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity or publicity and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel services, inc. AMA Analytical Services, inc.

AMA Analytical Services, Inc.

An AIHA (#214) and UVLAP (#1143) Accredited Laboratory

W

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 6 Job Site : Cameron Station Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91

Person Submitting: D.M. BARNES

MICROSCOPY LIGHT POLARIZED (H) SUMMARY

		COMMENT										
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	SAMPLE	a		9 !	409	410	411	412	413	414	832	833

LAST PAGE OF 5 PAGE(8)

** ANALYST ID CODE (SEE SIGNATURE)

- ASBESTOS NOT OBSERVED

COMMENTS: * P = ASBESTOS PRESENT

Samples. Insulation Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk

isa Boykin (AB)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity that it is not to be used, in whole or in part, in any advertising or publicity atterer whom it is not to be used, in whole or in part, in any advertising or publicity matter whome it is not to be used, in whole or in part, in any advertising or publicity matter whome it is not to be used, in whole or in part, in any advertising or publicity in the casions and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





	ABORATORY TEST REPORT
DATE: 12/18/90	DYNAMAC LAB NUMBER 12-90-685
REPORT SUBMITTED TO:	REPORT PREPARED BY:
WOODWARD CLYDE FEDERAL SERVICE ONE CHURCH ST. SUITE 404 ROCKVILLE MD 20850	DYNAMAC CORPORATION 11140 ROCKVILLE PIKE ROCKVILLE, MD 20852
ATTENTION: SALLY GUARDIA	CONTACT: RICK SANDER
-	Bldg & Dr' 7 Door 28
TYPE OF ANALYSIS: PLM	
1.) BULK ASBESTOS ANALYSIS IS PE	RFORMED USING POLARIZED LIGHT MICROSCOPY SPERSION STAINING, ACCORDING TO THE US DETERMINATION OF ASBESTOS IN BULK
COPCIFIC CAMPIES AS RECEIVED	INED IN THIS REPORT RELATE ONLY TO THE FROM THE CLIENT, AND ANY EXTRAPOLATION THE RESPONSIBILITY OF THE CLIENT.
3.) THE PERCENTAGES REPORTED ARE AS PROBABLE RANGES.	AREA ESTIMATES ONLY AND ARE EXPRESSED
4.) THIS TEST REPORT MUST NOT BE APPROVAL FROM THIS LABORATOR	REPRODUCED EXCEPT IN FULL AND WITH Y.

CERTIFIED BY:

LABORATORY MANAGER

COMMENTS:

DYNAMAC CORPORATION LABORATORY RESULTS SUMMARY OF RESULTS DYNAMAC LAB NUMBER:12-90-685

CLIENT SAMPLE NUMBER.	TYPE OF ASBESTOS DETECTED	
)12	NO ASBESTOS DETECTED	

DYNAMAC CORPORATION TEST REPORT COMPLETE RESULTS BY SAMPLE DYNAMAC LAB NUMBER:12-90-685

IPLE DATA	BULK ASBESTOS RESULTS	
SAMPLE NUMBER: 012	ASBESTOS	PERCENT
FRACTION #: 01B DATE ANALYZED:12/17/90 ANALYST: GREG FICK VERIFIED: GREG FICK	NO ASBESTOS DETECTED	
SAMPLE DESCRIPTION: BEIGE FINE-GRAINED MATERIAL	NONASBESTOS	PERCENT
WITH FIBERS	CELLULOSE FIBROUS GLASS NONASBESTOS, FIBEROUS NONASBESTOS, NONFIBROUS	2-5 10-15 1-2 75-80
COMMENTS:		

APPENDIX 6-F SAMPLE CHAIN-OF-CUSTODY FORMS

WCFS Project (,001

installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyde F ral Services

COC By: 1111113

Field Office: Woodward—C ederal Services
Building 17
Door 2 Cameron Statum Alexandria, VA 22304 703 617-7373

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Admin. Office:

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untit. 6. Vellow: Alt. Annivition Sarvines, Inc.

'S Project Scientist

001 WCFS Project (

Installation (2): CM Sample Program (3): BEI Laboratory (2):

- USATHAMA SAMPLES Woodward-Clyde rederal services CHAIN OF CUSTODY REC

COC By: 1 101 B

304 Building 1/ Door 2 Cameron Alexandria, 703 617-73

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Comments:

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· Project File

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3001

WCFS Projector

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Installation (2): Lon Sample Program (3): Laboratory (2):

CHAIN OF CUSTODY RE() - USATHAMA SAMPLES

coc By: 1/1/18

7,2304 Door 2 Cameron Alexandrio 703 617-

Admin. Office: Woodward-Ciyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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AMA Aanlytical Services, Inc. White & Ye

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8 WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Ciyde retail services CHAIN OF CUSTODY REC

- USATHAMA SAMPLES COC By: DIN 13

ş Door 2 Cameron Alexandria 703 617-1

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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MA Aanlytical Services, Inc. white & Yellu Woodward-Clyde Fistal Services

WCFS Project (1001

Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECOKU - USATHAMA SAMPLES

COC By:

ederal Services

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD. 20850 301 309-0800

Field Office: Woodward—C ederol
Building 17
Door 2
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Alexandria, VA 22304
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Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECONT - USATHAMA SAMPLES Woodward-Clyde Keral Services

coc By: 10 11

Field Office: Woodward -- Clyda, Federal Services
Building 17
Door 2 Cameron JA 2304 Alexandria, VA 2304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyde F ral Services

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Field Office: Woodward—Ct Herd Services
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Alexandria, VA 22304
703 617—7373 Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 1 100 165

Federal Services

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Building 17
Boor 2
Cameron Station
Alexandria, VA 22304
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CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES COC By: F 12 19

and Services

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BUILDING 7

7.1 DESCRIPTION

Building 7 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet with a flat roof consisting of tar, felt and gravel. It is divided into three bays by masonry firewalls. Originally constructed as a warehouse, parts of Bay 1 have been converted for occupancy by the Officers' Club, the NCO Club and a conditioning area. The mechanical room in the northeast corner of the bay contains a boiler, which supplies hot water to the kitchen areas. The rest of the building remains open warehouse space with several small finished office areas and restrooms. The Defense Supply Services occupies Bays 2 and 3. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

7.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 7-A through 7-F. A summary of this data is presented below.

7.2.1 Suspect Friable ACM

Seven homogeneous areas of suspect friable ACM were identified and 25 bulk samples, including 3 QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following four materials:

- Pipe fitting insulation, attic, Bay 1
- Trowelled-on boiler insulation, mechanical room, Bay 1
- Pipe fitting insulation, mechanical room, Bay 1
- Pipe fitting insulation, restrooms, Bay 3

These friable materials were found in three functional spaces and were assessed as follows:

- Pipe fitting insulation, attic, Bay 1. Assessment of this material indicates a damage factor of 14 and an exposure factor of 23. According to the GAHA Index, this material ranks as Priority B.
- Boiler and pipe fitting insulation, mechanical room, Bay 1. Assessment of these materials indicates a damage factor of 12 and an exposure factor of 25. According to the GAHA Assessment Index, these materials rank as Priority B.
- Pipe fitting insulation, restrooms, Bay 3. Assessment of this material indicates a damage factor of 23 and an exposure factor of 19. According to the GAHA Assessment Index, this material ranks as Priority A.

7.2.2 Suspect Nonfriable ACM

Seventeen homogeneous areas of suspect nonfriable ACM were identified and forty-four bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- Cement board
- FT 1 9" x 9" green floor tile and mastic
- FT 2
 9" x 9" brown floor tile and mastic
- FT 3 12" x 12" brown floor tile and mastic
- FT 5 9" x 9" dark brown floor tile and mastic
- FT 8 12" x 12" white floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

7.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and the vibration cloth are assumed to be ACM. No assessment of these nonfriable material was performed. However, as ACM they should be included in an O&M Program.

7.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

7.4 AREAS NOT ACCESSED

All areas of Building 7 were accessed.

7.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
7	40 LF PI 12 MF	> 115 MF 260 SF TSI	·

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

7.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 7-A ACM Survey Results

Appendix 7-B Assessments/Recommendations for Friable ACM

Appendix 7-C Building Drawings

Appendix 7-D Walkthrough Survey Data Sheets

Appendix 7-E Laboratory Certificate of Analysis

Appendix 7-F Sample Chain-of-Custody Forms

APPENDIX 7-A ACM SURVEY RESULTS

ACM Survey Results for Building 7

	Comments			Sample 481 is a QC for sample 480.		Sample 525 is a QC sample for sample 524.
	Sample Results (% and type of asbestos)	Assume ACM	Assume ACM	15-20% chrysotile 15-20% chrysotile 20-25% chrysotile 15-20% chrysotile 60-65% chrysotile	None detected None detected None detected	1-5% chrysotile 1-5% chrysotile 20-25% chrysotile 20-25% chrysotile
	Sample #	Assume ACM	Assume	479 480 481 482 489	474 475 476	524 525 526 527
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	S.	# of fittings	r.	n T
Quantity	Estimated Amount	130000	06	v 100	06	260
	Condition (Good, Fair, or Poor)	poog	poog	Poor	Good	Good
	Friability (Non, Low, Mod. or High)	Non	Non	High	Low	Low
	Location (where material is found)	Roof	Bay 1, on AHUs, in attic areas	Bay 1, North end of attic	Rear of Conditioning Room	Bay 1, Boiler, Mechanical Room, Door 3
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt	Vibration cloth	Pipe fitting insulation	Trowelled-on boiler insulation	Trowelled-on boiler insulation
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	151	TSI	TSI
	Homogen- eous Sample Area	-	8	ю	4	ഗ

Woodward-Clyde Federal Services July 2, 1991

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ACM Survey Results for Building 7 (continued)

	Material	Material Description				Quantity	tity			
Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
9	TSI	Trowelled-on breech insulation	Bay 1, Breech, Mechanical Room, Door 3	Low	Good	20	R.	532 533 534	None detected None detected None detected	
	TSI	Pipe fitting insulation	Bay 1, Mechanical Room, Door 3, Pipes from/to Boiler	High	Poor	31	# of fittings	528 529 530 531	20-25% chrysotile 15-20% chrysotile 5-10% chrysotile 5-10% chrysotile	Sample 531 is a QC for sample 530.
∞	TSI	Corrugated paper pipe insulation	Bay 3, DHW, Restrooms	High	Poor	40	Ŗ.	505 506 507	None detected None detected None detected	On domestic hot water line.
ത	TSI	Pipe fitting . insulation	Bay 3, DHW, Restrooms	High	Poor	. 12	# of fittings	508 509 510	55-60% chrysotile 55-60% chrysotile 55-60% chrysotile	
0	Misc.	Cement	Overhang, loading deck	Non	Fair	12800	R	502 523	55-60% chrysotile 45-50% chrysotile	
=	Misc.	Ceiling tile	See Drawing 7/1-CT	Non	Good	8700	SF	466 467	None detected None detected	CT 1 2' x 4' white, rectangular pattern w/small holes
12	Misc.	Ceiling tile	See Drawing 7/1-CT	Non	Good	3200	R.	498 499	None detected None detected	CT 2 12" x 12" white w/fissures
13	Misc.	Celling tile	See Drawing 7/1-CT	Non	Poog	750	n T	477	None detected None detected	CT 3 2' x 2' white w/fissures
ļ										

ACM Survey Results to Building 7 (continued)

	Sample Comments Results (% and type of asbestos)	None detected CT 4 2' x 4' white w/fissures	None detected CT 5 12" x 12" white w/uniform holes None detected	None detected CT 6 2' x 4' white smooth Sample 517 is a QC for sample 516.	5-10% chrysotile FT 1 9" x 9" green floor tile 10-15% chrysotile	1-5% chrysotile FT 2 9" x 9" brown floor tile 1-5% chrysotile	1-5% chrysotile FT 3 12" x 12" brown floor tile 1-5% chrysotile	None detected FT 4 4' x 4' burgundy floor tile None detected	
		None	None	Non Non Son	5-10	1-5%	1-5%	N N O N O N	
	Sample #	470 471	519 520	516 517 518	491 494	496 497	492 495	472 473	
tity	Unit of Measure- ment (SF, LF or # of fittings)	SF	R F	SF	SF	SF	R F	SF	
Quantity	Estimated Amount	400	1040	1100	200	089	400	1175	
	Condition (Good, Fair, or Poor)	Good	poog	poog	poog	Good	Poog	Poog	
	Friability (Non, Low, Mod. or High)	Non	Non	Non	Non	Non	Noon	Non	
	Location (where material is found)	See Drawing 7/1-CT	See Drawing 7/2-CT	See Drawing 7/2-CT	See Drawings 7/1-FT 7/3-FT	See Drawing 7/1-FT	See Drawing 7/1-FT	See Drawing 7/1-FT	
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Ceiling tile	Ceiling tile	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.	Misc.	Misc.	
	Homogen- eous Sample Area	14	ر ت	91	17	18	6	50	

ACM Survey Results L. Building 7 (continued)

	I							
	Comments	FT 5 9" x 9" dark brown floor tile	FT 6 12" x 12" medium brown floor tile	FT 7 .12" x 12" blue floor tile	FT 8 12" x 12" white floor tile			
,	Sample Results (% and type of asbestos)	5-10% chrysotile 5-10% chrysotile	None detected None detected ¹ <1% chrysotile ²	None detected None detected	1-5% chrysotile 1-5% chrysotile	None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected None detected	using PLM using TEM
	Sample #	521 522	515	511	503	468 469 490 493 500 501	4 8 8 4 4 8 5 4 8 8 5 4 8 8 5 4 8 8 5 4 8 8 5 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6	
iity	Unit of Measure- ment (SF, LF or # of fittings)	SF	Ω.	Ω.	S.	R.	r.	
Quantity	Estimated Amount	400	400	700	200	28000	0006	
	Condition (Good, Fair, or Poor)	Good	poog	Bood	Good	Poo O	90 00	
	Friability (Non, Low, Mod. or High)	Non	Non	c O N	o N	c o Z	c o Z	
	Location (where material is found)	See Drawing 7/2-FT	See Drawing 7/2-FT	Bay 2, Lounge, See Drawing 7/2-FT	Bay 3, Restroom, See Drawing 7/3-FT	Walls: Throughout building Ceilings: See Drawings 7/1-CT 7/3-CT	Celling in kitohen	
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Regular gypsum board	Plaster	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Surfacing	Surfacing	
	Homogen- eous Sample Area	21	22	23	. 54	25	5 6	

APPENDIX 7-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 7

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	immediate Action - Isolate area and restrict access to qualified personnel. Schedule an immediate corrective action (often removal) to reduce the risk of exposure to asbestos fibers.		
	GAHA Index	es	ω	∢		
	Exposure Factor	23	25	0		
	Damage/Risk Factor	4t.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	23		
Material Description	Type (e.g. pipe fitting insulation)	Pipe fitting insulation	Boiler insulation, pipe fitting insulation	Pipe fitting insulation		
Materi	Category (surfacing TSI or misc.)	TST	TSI	181		
	Homogen- eous Sample Area #	m	5, 7	თ		
	Functional Space	7-1 Bay 1, attic	7-2 Bay 1, mechanical room	7-3 Bay 3, restroom, domestic hot water line		

Woodward-Clyde Federal Service July 2, 199

Inspector/Date Barakes Guaracter 2/20/97

Material Type(s)

lomogeneous Sample Area #(s) unctional Space 7-/

Building_

ameron Station

Part 1: Damage/Risk

• Visible evidence of physical damage: (5 High;

4 Moderate;

2 Low; 1 Minimal;

Water damage:

on (ii)

3 <1 ft. or ceiling panel contaminated; $2 \le 1 \le ft < 5$; $1 \ge 5$ ft; 0

• Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

>5 ft & no routine maintenance

A. Sprayed- or trowelled-on:

B. Pipe, boiler or duct insulation:

3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

Potential for Contact based on material proximity to area occupants:

< 10 ft: Ą

5 Medium; (2) Low 8 High;

5 High;

≥ 10 ft:

ä

3 Medium; 0 Low

 Asbestos content: Use percentage for material with highest probability for becoming airborne: 3 $30 < \% \le 50; (£) > 50\%;$ $1 1 < \% \le 30;$

NO HAZARD Samples contain no asbestos

Sample Numbers:

480

Damage/Risk Total

Woodward-Clyde Federal Services

Inspector/Date Barries /

Material Type(s) Surdies (presentable)

Homogeneous Sample Area #(s)

Functional Space_

Building _

Cameron Station

Part 1: Damage/Risk

• Visible evidence of physical damage: 5 High; (4) Moderate;

1 Minimal; 2 Low;

0 None

Water damage:

on O

• Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance A. Sprayed- or trowelled-on:

3 <1 ft. or ceiling panel contaminated; 2 1 \leq ft <5; 1 \geq 5 ft; 0 \geq 5 ft & no routine maintenance

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

Potential for Contact based on material proximity to area occupants:

< 10 ft:

Š

8 High; ((5) Medium; 2 Low

5 High; 3 Medium; 0 Low

> 10 ft:

<u>Asbestos content</u>: Use percentage for material with highest probability for becoming airborne:

(1) 1< % \leq 30; 3 30 < % \leq 50; \left(3) \right) \leq 50%; NO HAZARD Samples contain no asbestos

52D

Sample Numbers:

Damage/Risk Total

ľ	
	Building .
	Station
	neron

Material Type(s) The fetting madistern

Inspector/Date Fanus (Galadian 2/20/3)

inctional Space 7-1 Ban Other omogeneous Sample Area #(s)_

Part 2: Exposure

/6 High; 3 Moderate; 1 Low

Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $1 \cdot 10 \le \text{ ft}^2 < 100$; $(2) \cdot 100 \le \text{ ft}^2 < 1000$;

> 1000 ft

Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth

5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; Ventilation: (Mark all categories that apply; maximum of 7 points.)

Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream;

0 No perceptible air flow in area

None of the above

Activity (Refers to forces such as vibration, water or steam acting on material.)

5 High (constant vibration); (2) Medium (occasional vibration);

o Low

0-4 Unique situation (e.g., dirt floor) 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface;

• Floor:

Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

A. Sprayed- or trowelled-on ceiling or walls

1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None

B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

3 $50 < \% \le 75$; (4) $75 < \% \le 100$ $1 \le 25\%$; $2 \ 25 < \% \le 50$; $3 201 \le \text{pop} \le 500$ • Population: $(1) \le 9$ or for corridors; 2 10 \le pop ≤ 200 ; Exposure Total

Woodward-Clyde Federal Services

5 > 1001 or medical/youth centers/residential

 $501 \le \text{pop} \le 1000$;



Cameron Station Building 7 Inspector/Date Annual (Caulo) 1/2011 Homogeneous Sample Area #(s) 5, 7	or fulfing
Bay! medamial room door 3	una later
Part 2: Exposure Friability: (6) High; 3 Moderate; 1 Low	
أسة	
Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)	
(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth	
Ventilation: (Mark all categories that apply; maximum of 7 points.)	
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above	
• <u>Air Movement</u> : 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area	
Activity (Refers to forces such as vibration, water or steam acting on material.)	
(5) High (constant vibration); Mcdium (occasional vibration); 0 Low	
Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)	
Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)	:
Sprayed- or trowelled-on ceiling or walls	
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None	
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants	
$1 \le 25\%$; $2 \le 5 < \% \le 50$; $3 \le 6 < \% \le 75$; $4 \ \ \ \ \ \ \ \ \ \$	
$\overline{Population}$: $\binom{1}{2} \le 9$ or for corridors; $2 \cdot 10 \le pop \le 200$; $3 \cdot 201 \le pop \le 500$ $4 \cdot 501 \le pop \le 1000$; $5 > 1001$ or medical/youth centers/residential	outh centers/residential
Exposure Total 25	Woodward-Clyde Federal Services

November 19, 1990

Inspector/Date Barres Statems was dellers	Material Type(s)	
Sameron Station Building 7	lomogeneous Sample Area #(s) 9	2. 2 20, 2 Respense DHIN Line

Part 1: Damage/Risk

2 Low; 1 Minimal; • Visible evidence of physical damage: (5/High; 4 Moderate;

Bars

unctional Space 7-3

0 None

(3) Yes; 0 No

Water damage:

3 <1 ft. or ceiling panel contaminated; 2 1 < ft <5; 1 >5 ft; 0 >5 ft & no routine maintenance • Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)

B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance A. Sprayed or trowelled on:

• Type of material (If area contains several friable materials, score the one with the greatest quantity).

0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls

Potential for Contact based on material proximity to area occupants:

(18/High; 5 Medium; 2 Low A. < 10 ft:

5 High; 3 Medium; 0 Low ≥ 10 ft:

• Asbestos content: Use percentage for material with highest probability for becoming airborne:

1 1< $\% \le 30$; 3 30 < $\% \le 50$; (5/5) > 50%; NO HAZARD Samples contain no asbestos

23 510 508 509 Damage/Risk Total Sample Numbers:

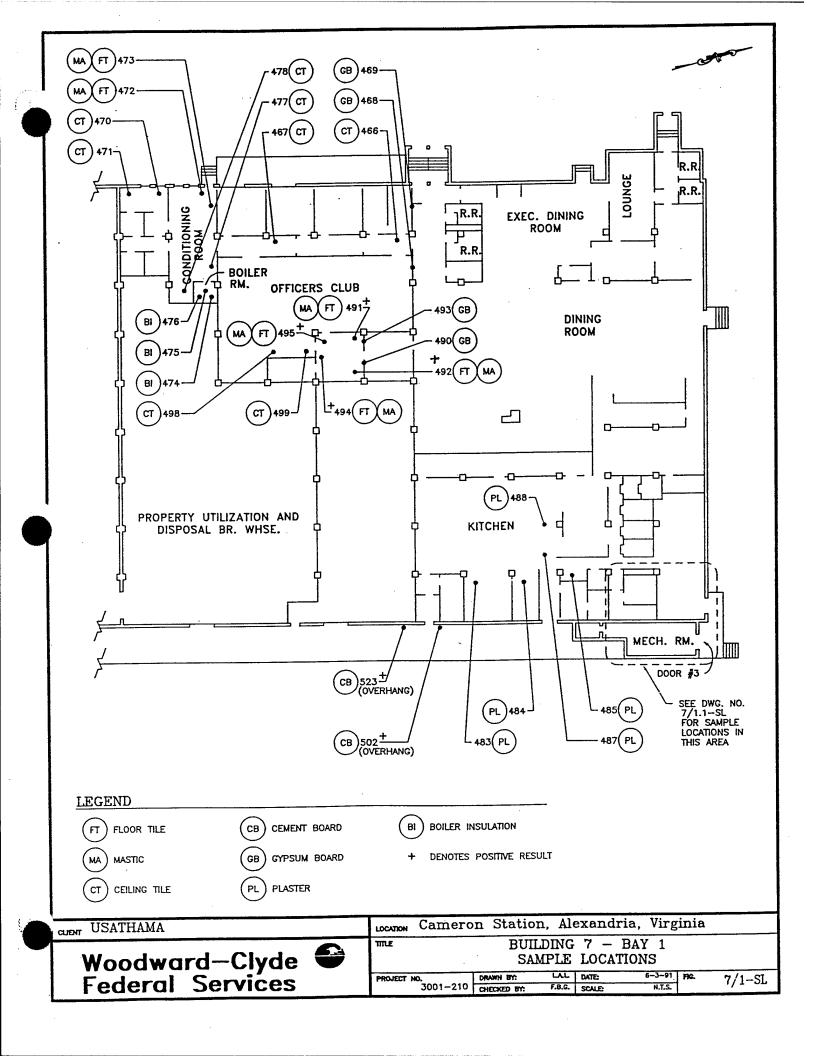
Woodward-Clyde Federal Services

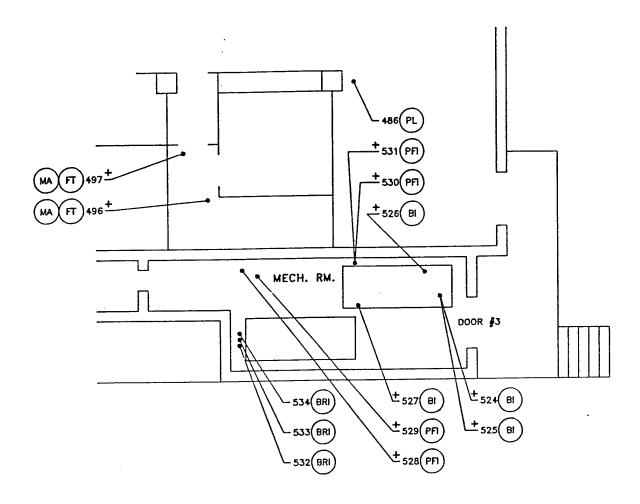
November 19, 1997

18.35/20191	y fetting in) ft ₂					(0)No perceptible air flow in area			floor)						5.5 > 1001 or medical/youth centers/residential	Woodward-Clyde Federal Services
Friable Asbestos Assessment Checklist	meron Station Building 7 Inspector/Date Darrie Inspector Darrie I	Inctional Space	Friability: (6/High; 3 Moderate; 1 Low Friability: (1/10 \leq ft ² < 100; 2 100 \leq ft ² < 1000; 3 \geq 1000 ft ₂	Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)	(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth	Ventilation: (Mark all categories that apply; maximum of 7 points.)	ser potential in air supply; $\begin{pmatrix} 0 \end{pmatrix}$ Nor	Air Movement: 5 Routine turbulent/abrupt air movement; 2 Perceptible/occasional air stream; (10)No percept	Activity (Refers to forces such as vibration, water or steam acting on material.)	5 High (constant vibration); (2/Medium (occasional vibration); 0 Low	Floor: 4 Carpet; 2 Seamed or rough surface; (1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)	Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)	A. Sprayed- or trowelled-on ceiling or walls	1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None	B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants	$1 \le 25\%$; $2 \le 5 \le \% \le 50$; $3 \le 6 \le \% \le 75$; $(4) 75 \le \% \le 100$	• Population $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$;	Exposure Total /9

November 19, 1990

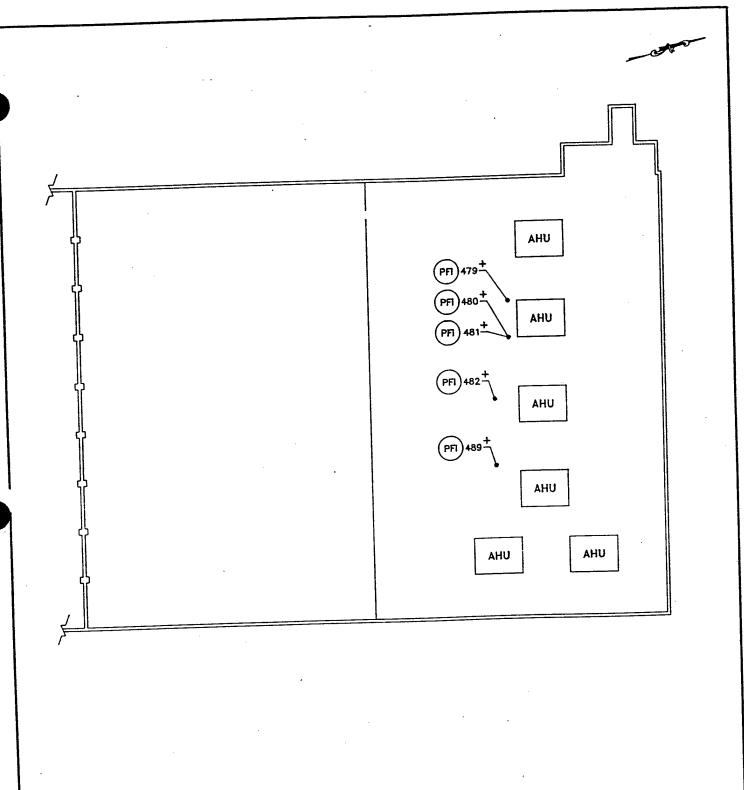
APPENDIX 7-C BUILDING DRAWINGS





- (FT) FLOOR TILE
- MA) MASTIC
- PL PLASTER
- (PFI) PIPE FITTING INSULATION
- (BI) BOILER INSULATION
- (BRI) BREECH INSULATION
 - + DENOTES POSITIVE RESULTS

CLERT USATHAMA	LOCATION Camero	n Station, Ale	exandria, Vir	ginia	
Woodward-Clyde 🚭	TILE	- ·	7 - BAY 1 LOCATIONS		
Federal Services	PROJECT NO.	DRAINS BY		FIQ.	7/1.1-SL
Legeral Services	3001-210	CHECKED BY: F.B.C.	SCALE N.T.S		1/ 212

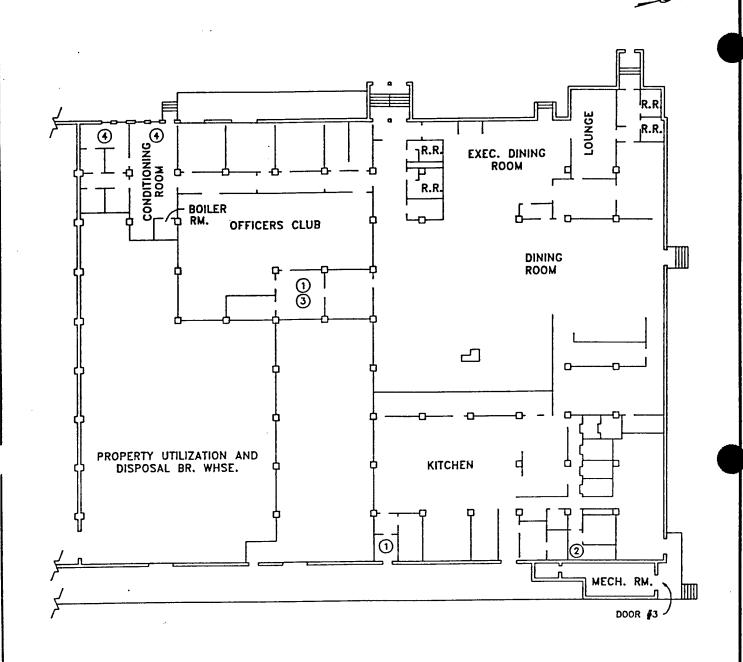


(PFI) PIPE FITTING INSULATION

AHU AIR HANDLING UNIT

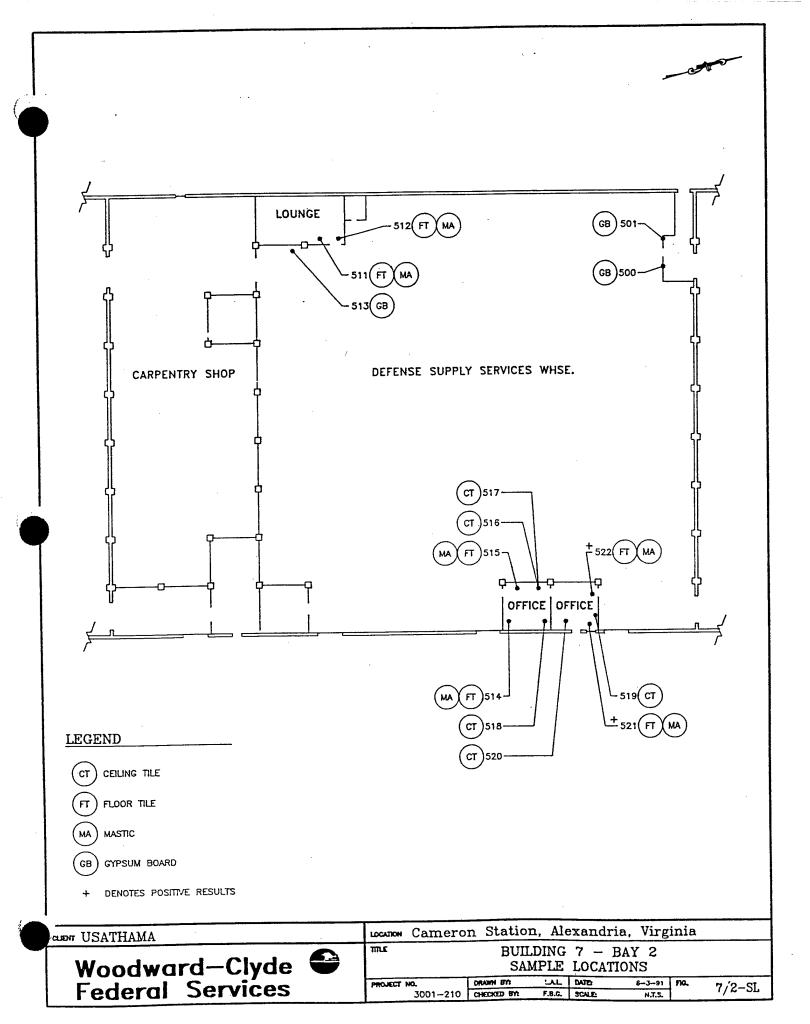
+ DENOTES POSITIVE RESULTS

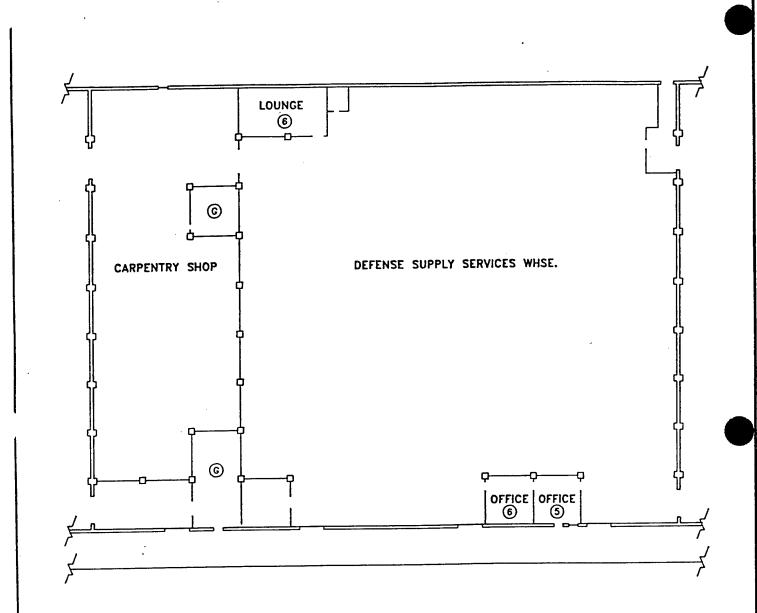
CIENT USATHAMA	LOCATION					, Virginia	
	TITLE		BUILDIN SA	IG 7 MPLE	- BAY :	ATTIC NS	
Woodward-Clyde Services	PROJECT I	NO. 3001-210	DEVOIDED BUT	LAL	DATE	6-3-91 FIG.	7/1A-SL
rederal solvious	<u> </u>						



- 1 g" x g" GREEN
- 2 g x g BROWN
- 3 12" x 12" BROWN
- (4) 4' x 4' BURGUNDY

USATHAMA	LOCATION	Camero	n Station	, Ale	exandria	, Virg	inia	
Woodward-Clyde	TITLE				7 - BA E LOCAT			
Federal Services	PROJECT	+0. 3001−210	DRAWN BY: CHECKED BY:		DATE: SCALE:	6-3-91 H.T.S.	DWG. NO.	7/1-FT





- 5) 12" x 12" UNIFORM HOLES TILE
- 6 2' x 4' SMOOTH TILE
- © GYPSUM BOARD

CUENT USATHAMA

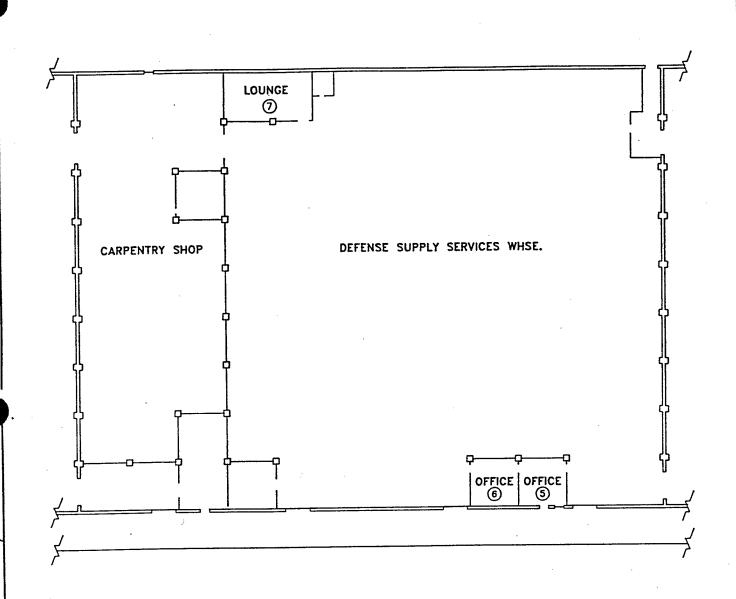
Woodward-Clyde Federal Services



LOCATION C	ameron	Station,	Alexandria,	Virginia

BUILDING 7 - BAY 2 CEILING TYPE LOCATIONS

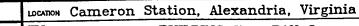
PROJECT NO.	DRAWN BY:	Y	DATE	6-3-91	DWG NO. 7/2-CT
3001-210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.	1/2 01



- (5) g" x g" DK. BROWN
- 6 12" x 12" MED. BROWN
- 7 12 x 12 BLUE

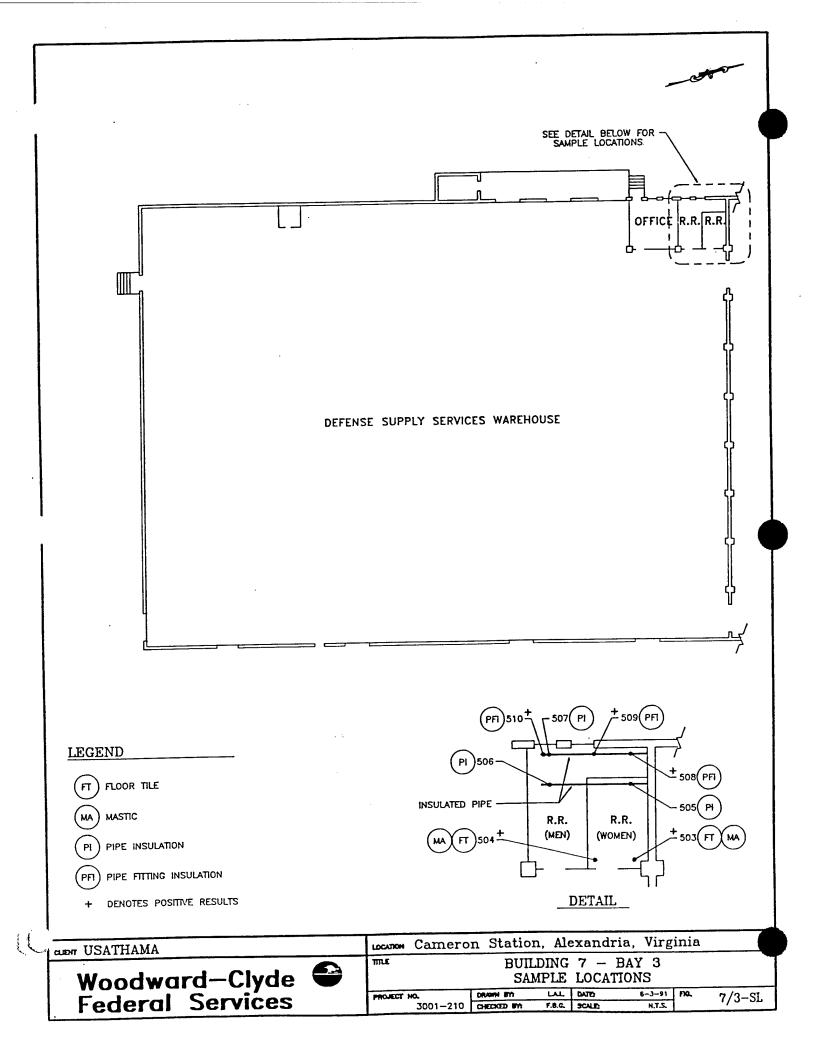
CLIENT	USATHAMA	
CLIENT	COMITICAL	

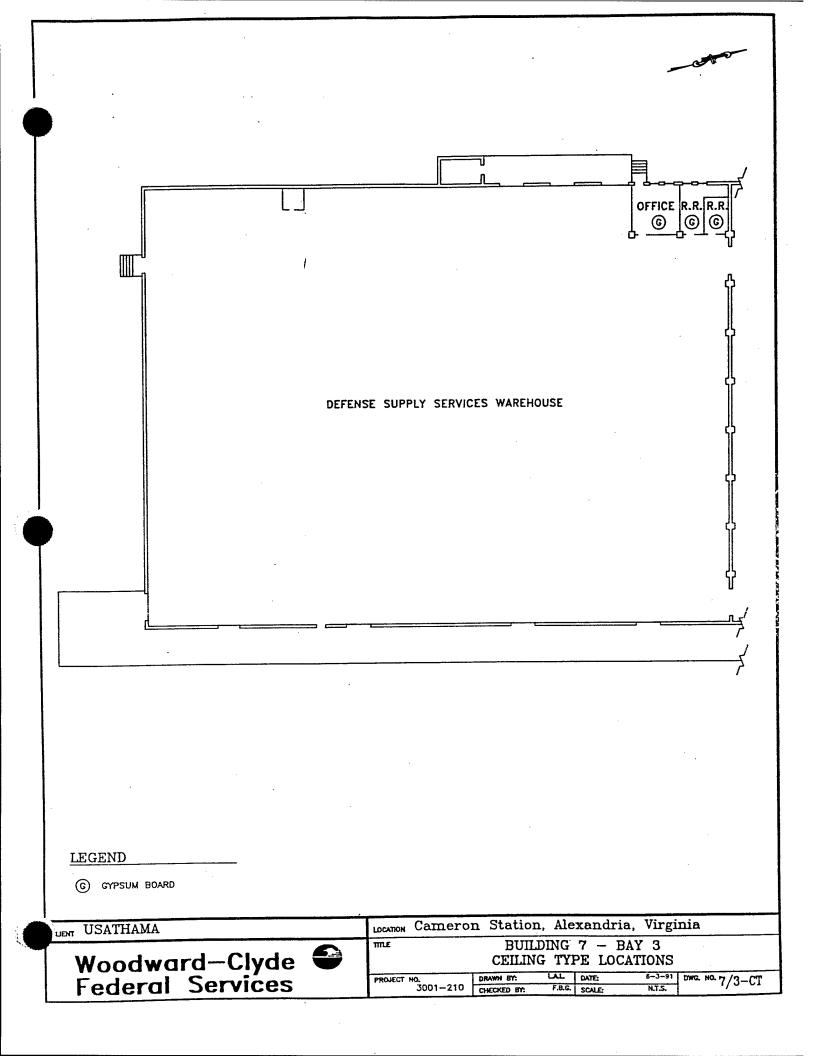
Woodward-Clyde Federal Services

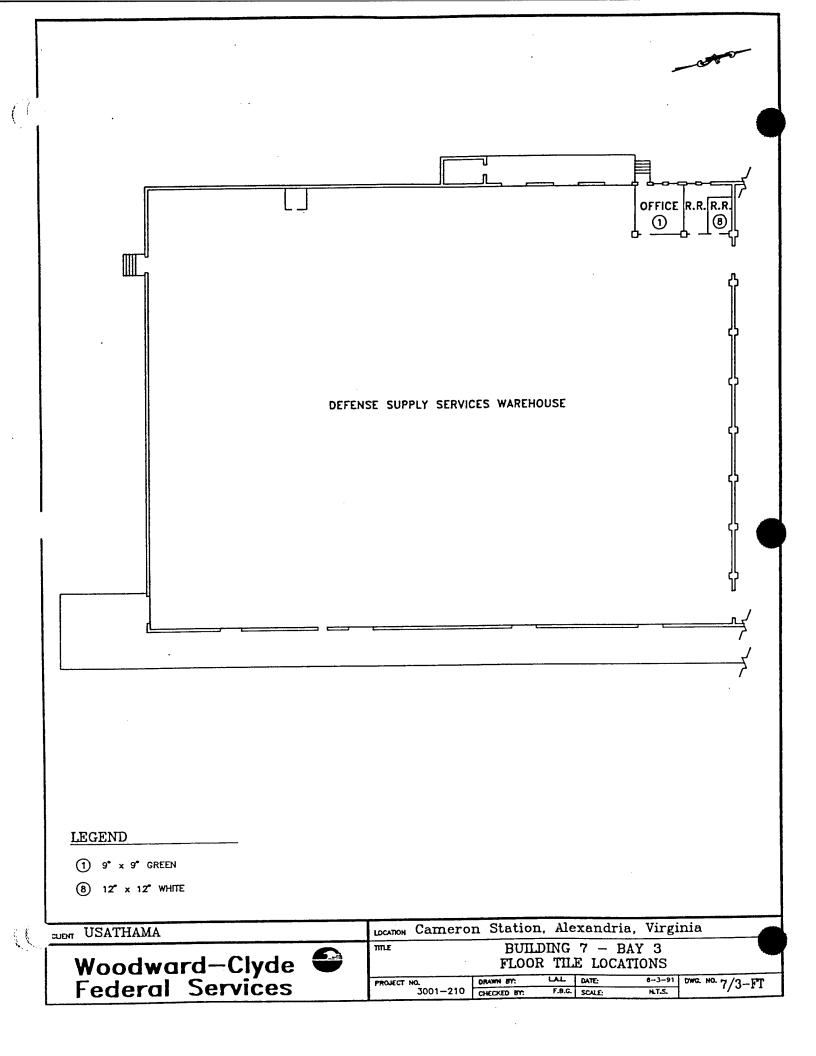


BUILDING 7 - BAY 2 FLOOR TILE LOCATIONS

PROJECT NO. DRAWN BY: LAL DATE: 6-3-91 DWG. NO. 7/2-FT







APPENDIX 7-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Station				Walkthrough Survey 4 Sheet 1 o
Building #7 Meek 1	# ACCO CLUMS	EXTERIOR	IOR	Gunional Brixales S Inspector Date 19/27/90
Exterior Siding				
Masonry IZ Steel/A	Steel/Aluminum	□ poo _M	Asbestos Cement Shingle	Asphalt Shingle
Other 15, 45,19 31, 105%	Soffit	ū		
Sample (K) N	Condition (G)	G) F P	Quantity 12, 8011 SF	
Roof Shingle (asphalt/fiberglass) □	7ar & Felt 由	Joseman Acm	Fiberglass Panel	Other
Sample Y N	Condition	G F P	Quantity 49 500 130, 184 SP	
Exterior Mechanical Systems	Sample	Condition	Quantity	Location
Vent pipe A	E X	д Ч		
Chimney	X (G F P		
Louvers 🗷	X/X	GFP		
A/C Units	Z Z	G F P		
Other	z	G F P		
		<u></u>	STRUCTURAL	
Wood Joists/Beams []	Steel Joists/Beams	Wood Columns	Steel Column [37]	Concrete Column [Z]
Sample Y 📯	Condition	G F P	Quantity SF	
Sample Y N	Condition	G F P	Quantity SF	
Firewalls - Steel	Masonry [Firedoor	
Sample Y (N)	Condition	G 74 D	Quantity SF	
				Woodward-Clyde Federal Services
dila suchata com o antonio con co				Montanian 16

Cameron Station

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building *7					Inspector/Date: 6-42 KOM / Burns S	KOIA / BANDES	08/25/50
	QI#	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition . G F P	. Quantity
Miside Deor#3 Boiler		485	/	traveled on	763	Poog	~ 2603F
Acar - contitioning		",		"	ï,	,,	90 SF
				,			
myick Day #3 Breeching		4.CS		semole / mud	son	poot	1 20
				•		5	
Furnace							
Tanks/Vessels			•				
Elec./Telephone							
		·					
							·
Other							
AHY veloaten.					bounc	У	4 90 SF
CUD							
*Type of Insulation:							

Trowelled-on
 Mud
 Other

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Woodward-Clyde Federal Services

HVAC

Cameron Station

Building #7					Inspecto	Inspector/Date: 6490014/Barres		08/20/81
	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	. Diam. of Pipe
Duct			Film class	M				
			5					
Pipe	DOC#3 814 47	3	Filmalow					
DHE	Lavaraya 3	220	Corner atel	Sah	00 OC	2 40	7 7	1-3"
			paper					
Fittings	Enhall havener	468	mud	0.5	, 200C	12	J.	
	North E115 atte	\$ 1,5	Dall	5217	1000	> 100	Ħ	1-3"
-5 / fass.	11 Dr. 5	. 7 6.3	hun	C+3	nud,	٠ کمر	4	
Other								
*Type of Insulation:	n:						,	

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

5. Trowelled-on6. Mud7. Other

Woodward-Clyde Federal Services

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INTERIOR - CEILING/WALLS/FLOORS/MISC.

Cameron Stati

		*						 		 		
	Quantity	58 000	÷	goar			٠		·			
ate:	Condition G F P	. 9	-	6	,	٠						
Inspector/Date:	Sample Y N											
	Location	throw, how.		ceiling - K, tchu.	Bay 1							
	Color/Pattern	Pan tul										
Building 7	Material*	- 1			D/Go the							

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Woodward-Clyde Federal Services

November 19, 1990

INTERIOR - CEILING/WALLS/FLOORS/MISC.

20																	
Barnes 12/27	Quantity	c 8700 se	~ 3200 sr	~ 750 sr	~ 400 50	~ 1040 51	N 1100 3F		~ 5-00 st	£ 589 Y	~ 400 st	~ 1179 SF	~ 400 sf	~ 400 52	100 st	~ 200 sf	
Inspector/Date: ムルスペントル	Condition G F P	9000	90001	م م م م	9005	9000	pood		40004	9000	boop	9,000	8000	1	boak poak	व व	
Inspector/D	Sample Y N	708	50%	324	468	705	40.8)	ر بر 2	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \) 2 2 8) \ \ \ \ \	۷ ر ع	לעט) 2 0	488	
	Location	Sec plan	sec dan		1	P .	Se dan	ſ	Sec Nan	?	Γ.	Γ.	Γ	1			
	Color/Pattern	while rectangular	white lissured	Wite / Pssured	white Passared	white familian	chite/smooth		وريد)	6,000	2000	Surganda	(brk Stown	Med. Brown	Blue	ahite	
3uilding ×7	Material*	AXC 1 & 111 X 11111	"C1x"C1 5" 11" 22"	ľ	`	1	/2" 101/ Tibe # 3x4		14 6/6 " 9×9"				100 116 ex 9"49"	Sour 1:10 = 6 12 x12		1600 11/2 # 8 12×12	

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services

APPENDIX 7-E LABORATORY CERTIFICATE OF ANALYSIS

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services
I Church St. Suite 404
Rockville, MD 20850

Attn: Sally Gaurdia

Bldg # : 7
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91

Date Analyzed : 02/27/91 Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED [H SUMMARY

COMMENT														
ANALYST ID**	λs	Ş	S Z	NS NS	SX.	SX.	S 8	ş	SS.	AS	SZ.	SS.	SS.	SS.
PARTICULATE	30-40	30-40	80-85	70-75	30-40	30-40	100	100	65-70	65-70	65-70	30-40	30-40	55-65
AL 4/		1		1	:		1		1	1	1	1		;
OTHER FIBROUS MATERII MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	30-35	30-35	15-20	25-30	30-35	30-35		1 1	7	₽	7	30-35	30-35	7
R FIBROUS FIBROUS GLASS		!	۲>	!	1	1		! ! !		-			!	
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	30-35	30-35	1	1	30-35	30-35	1	1	30-35	30-35	30-35	30-35	30-35	20-25
EMO- ACTIN- ANTHOP-		!	1 1	! ,	1 1 1 1	ļ		į	į	1	1	;	1	:
ACTIN- OLITE					1							1	;	
	İ	!	1	!	1	1	!	1	1	1				1
/		;		1	1	1 1	1	1	;	!	1	;		
AMOSITE	!	;	1	1	1		1	1		1	;	!	!	-
CHRYSO-		1	1	-		!	1	1		1		1		15-20
ASBESTOS PRESENT*	z	z	z	z	z	z	z	z	z	z	z	Z	x	Δ,
SAMPLE	466	467	468	469	470	471	472	473	474	475	476	477	478	479

** ANALYST ID CODE (SEE LAST PAGE)

N - ASBESTOS NOT OBSERVED

COMMENTS: * P = ASBESTOS PRESENT

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





. Group and construction political section 35 of the construction woodward-Clyde Federal Services

Y

1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 7
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91 Date Analyzed : 02/27/91 Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED <u>Н</u> SUMMARY

COMMENT														
ANALYST ID**	AS	AS	AS	S.	SS.	AS	AS	A.S	SS.	SS.	AS	SE.	AS	Y S
PARTICULATE	55-65	20-60	55-65	100	100	100	100	100	100	30-39	100	90-95	95-99	95-99
AL &/	1	1	!		•	1	1	-	!	1	1	1	;	1
s materi organic fibers	1	1		₽.	₽	7	7	1	₽	1	₹	1	1	₹
CTHER FIBROUS MATERII MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	į	1	1 1 1	1	1		1	1	!	!	1	1		01-05
/ OTHER FIBROUS MATERIAL %/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	20-25	20-25	20-25	7	7		7	1	!	01-05	1	1	1 1 1	1
/	!	1	-	1	1 1 1	1	1	1	•	1	1	!	1	
S &TREMO- ACTIN- ANTHOP- LITE OLITE EYLLITE	1	1		1	1		1		1	1	1		1	1
OS & TREMO- LITE	1	-		1	1	!	!					!		1
ASBEST CROCIDO- LITE	9	!	!	!	1	1	1	1	;	!	!			
AMOSITE		1 1 1	1	1		1	1	1		!			1	1
CHRYSO-	15-20	20-25	15-20	1		:	1	1		60-65	1	05-10	01-05	1
ASBESTOS PRESENT*	Д	Ωι	Ω	z	z	z	z	z	×	Д	z	Δ,	p.	z
SAMPLE	480	481	482	483	484	485	486	487	488	489	490	491	492	493

COMMENTS: * P = ASBESTOS PRESENT ** ANALYST ID CODE (SEE LAST PAGE)
N = ASBESTOS NOT OBSERVED

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Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station

Bldg #

Job Number: 3001

Date Analyzed Date Sampled

Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED OF SUMMARY

	COMMENT														
ANALYST	10**	SS.	88	SY	38	SS.	88	SA SA	SX.	SZ.	SZ.	SS	SS.	SS.	SX.
	PARTICULATE	85-90	95-99	85-94	85-94	25-35	25-35	100	95-99	40-45	86-06	95~99	10-15	10-15	15-20
Yr • ∕	OTHER	!	₹	05-10	05-10	!	!		!	i		!	!	1	!
OTHER FIBROUS MATERI. MINERAL PIBROUS ORGANIC	FIBERS	1	7	-	•	25-30	25-30	7	01-05		01-05	01-05	85-90	85-90	80-85
R FIBROUS	GLASS	1		!	!	1	1	1	₽		!	-	1	}	-
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC	MOOT		!	1	1	40-45	40-45	1	1		!	1	1	1	1
NEMO- ACTIN- ANTEOP-	HYLLITE	!	1 1 1		1	!	1	1 1 1	-	1 1 1	1	!	1	1	1
- ASBESTOS &	OLITE	}		!	1	1		!	!	1	1	1		!	1
OS . TREMO-	LITE	;					;				;		;	:	
/ ASBESTOS CHRYSO- CROCIDO- IN	LITE	1	1		;		1	!	1	ļ		;			!
	AMOSITE		;	1	1	1 1 1	}	1	1						1
CHRYSO-	TILE 1	10-15	01-05	01-05	01-05	!	1	1		55-60	01-05	01-05	;	1	
ASBESTOS	Present*	A	ρι	ρ,	ρ,	z	z	z	z	p.	p.	Α	z	z	z
SAMPLE	er Er	494	495	496	497	498	499	200	501	502	503	504	505	506	507

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

- ASBESTOS NOT OBSERVED

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Commence of the property of the second of th Woodward-Clyde Federal Services



1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Sits : Cameron Station Job Number: 3001 Bldg #

: 02/27/91 Date Analyzed Date Sampled

Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED **H**0 SUMMARY

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COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter between the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

Bldg # : 7
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91 Date Analyzed : 02/27/91 Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED 日 〇 SUMMARY

	COMMENT													
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LAST PAGE OF 5 PAGE(8)

Insulation Samples. Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in BAR

(SEE SIGNATURE)

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N - ASBESTOS NOT OBSERVED

* P = ASBESTOS PRESENT

COMMENTS:

Andreas Saldivar (AS

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ak ng lugit katamatan barata



May 15, 1991

Woodward-Clyde Federal Services One Chruch Street, Suite 404 Rockville, MD 20850

RE:

JOB SITE:

JOB LOCATION:

PROJECT NUMBER:

TEM Bulk Analysis Cameron Station

Bldg. 7

Cameron Station

3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.	ORGANIC MATERIAL	DOLOMITE/ CALCITE	NON FIBROUS MINERALS
515	<1%	20%	62%	18%

Woodward-Clyde Federal Services May 15, 1991 Page 3 of 3

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely, AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos

Electron Microscopist

Robert M. Powell Laboratory Director

LHB/kec

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde F ral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIM!

Jeral Services

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Field Office: Woodward-O., derail Building 17 Door 2 Comeron Station Alexandria, VA 22304 703 617-7373 Admin. Office:

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Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECOND - USATHAMA SAMPLES Woodward-Clyde (eral Services

COC By: O LM LB

Fleid Office: Woodward—r Federal Services
Building 17
Door 2

Cameron Sta.... Alexandria, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309~0800

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'S Project Scientist

White & Yellow Ar., Analytical Services, Inc.

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Installation (2): Ch. Sample Program (3): Laboratory (2):

WCFS Project

Woodward-Clyde teral Services CHAIN OF CUSTODY RECEIVED - USATHAMA SAMPLES coc By: 🚣

Federal Services

Woodward-Clyde Federal Services One Church Street, Suite 464 Rockville, MD 20850 301 309-0800

Field Office: Woodwo
Building
Door 2
Comeron Station
Alexandria, VA 22304
703 617-7373 Admin. Office:

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Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECO ... - USATHAMA SAMPLES Woodward-Clyde ' eral Services

coc By: DIMIB

Field Office: Woodward—Federal Services
Bullding 1;
Door 2
Cameron Sto.....
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Ciyde Federal Services One Church Street, Suite 404 Rockville, MQ 20850 301 309~0800

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White & Yellow: A.

Installation (2): CM Sample Program (3): BEI Laboratory (2):

ral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

coc By: 0 m 18

rderal Services Field Office: Woodward
Building 1)
Boor 2
Commercial Station
Agreement VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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WCFS Project 1 ,001

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde | eral Services

CHAIN OF CUSTODY RECOND - USATHAMA SAMPLES

Field Office: Woodward—

Building 17

Door 2

Cameron Staum
Alexandria, VA 22304
703 617—7373

Admin. Office: Woodward-Ciyde Federal Services One Church Street, Suite 404 Rockville, MD. 20850 301 309--0800

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Woodward-Clyde strai Services CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIMIB

ederal Services Cameron Stat. Alexandria, VA 22304 703 817-7373 Field Office: Woodward-Building Door 2

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Woodward-Clyde leral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: \$ 1/1/1 B

Federal Services

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Fleid Office: Woodward: Federal Building 1. Door 2 Cameron Station Alexandrio, VA 22304 703 617-7373 Admin. Office:

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Installation (2): CM Somple Program (3): BEI Laboratory (2):

Woodward-Clyde

CHAIN OF CUSTODY RECOKU - USATHAMA SAMPLES eral Services

coc By: UMIB

Federal Services Field Office: WoodwardBuilding 17
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Comeron Station
Aexandria, VA 22304
703 617-7373

Admin. Office:

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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CHAIN OF CUSTODY RECOND - USATHAMA SAMPLES Woodward-Clyde Meral Services

COC By: ____

Field Office: Woodward—C Federal Services
Bullding 17
Door 2
Common Stat.
Alexandria, VA 22304
703 617—7373

Admin. Office: Woodward—Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309—0800

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BUILDING 8

8.1 DESCRIPTION

Building 8 is a masonry, concrete, timber and steel structure of approximately 130,000 square feet. The flat roof is constructed of tar, felt and gravel over wood. It is divided into three bays by masonry firewalls. Originally built as a warehouse, it has been converted to offices and a separate attic area, which houses the HVAC system. Building materials typically found throughout the first floor of the building include carpet over one type of floor tile, ceiling tile, plaster (in the restrooms) and regular and fire code gypsum board. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

Current occupants are the Defense Logistics Agency (DLA) and the Defense Fuel Supply Center (DFSC).

8.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 8-A through 8-F. A summary of this data is presented below.

8.2.1 Suspect Friable ACM

Three homogeneous areas of suspect friable ACM were identified and eleven bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material.

Corrugated paper pipe insulation

Assessment of this material, which was found in one functional space, indicates a damage factor of 3 and an exposure factor of 19. According to the GAHA Index, this material ranks as Priority C.

8.2.2 Suspect Nonfriable ACM

Eight homogeneous areas of suspect nonfriable ACM were identified and thirty-four bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following two materials:

- FT 1 9" x 9" green floor tile and mastic
- CT 2 2' x 2' white ceiling tile w/uniform holes
- Joint sealant

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

Analysis detected less than 1% asbestos in five of the suspect materials.

8.2.3 Material Assumed To Contain Asbestos

The following three homogeneous areas are assumed to be ACM.

- Tar and felt roofing material
- Vibration cloth
- Tar sprayed on brick walls

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

8.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following material, originally identified in the walkthrough survey as suspect ACM, was examined more closely and reclassified as nonsuspect:

• CT 1 2' x 4' fiberglass ceiling tile

No bulk samples of this material were collected, and it was deleted as a homogeneous sample area from the final survey data.

8.4 AREAS NOT ACCESSED

The following areas in Building 8 were not accessed:

- Bay 1
 - Room 8B158
 - Unnumbered room along east wall near Room 8A198
- Bay 2
 - Room 8B312
 - Room 8B318
 - Attic area above Room 8B312

8.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
8			75 LF PI

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

8.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 8-A ACM Survey Results

Appendix 8-B Assessments/Recommendations for Friable ACM

Appendix 8-C Building Drawings

Appendix 8-D Walkthrough Survey Data Sheets

Appendix 8-E Laboratory Certificate of Analysis

Appendix 8-F Sample Chain-of-Custody Forms

APPENDIX 8-A ACM SURVEY RESULTS

ACM Survey Results for Building 8

	Material	Material Description				Quantity	ıtity			
Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
-	Misc.	Tar and felt	Roof	Non	poog	130000	SF	Assume	Assume ACM	
7	Misc.	Vibration cloth	Bays 1, 2, & 3, on AHUs in attic areas	c O N	Good	120	S.	Assume ACM	Assume ACM	
т	Misc.	Tar	Bay 1, Attic north & east walls	c o N	рооб	200	r.	Assume ACM	Assume ACM	A thin layer of the material has been sprayed on brick walls.
4	TSI	Pipe fitting insulation	Bays 1, 2, 3 Attic areas	Low	900g	300	# of fittings	609 615 616	None detected None detected None detected	
ഗ	151	Corrugated paper pipe insulation	Bay 1, Attic, north wall	P O V	D000	75	<u> </u>	632 633 638	None detected 25-30% chrysotile < 1% chrysotile	, .

Woodward-Clyde Federal Services July 2, 1991

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ACM Survey Results for Building 8 (continued)

	Comments	White powdery material on bricks, Sample 635 was contaminated with asbestos-containing tar which has been sprayed on the brick wall.		Material is found on fiberglass-insulated pipes and ducts. The estimated amount is based on the quantity of insulation on which it is located.	FT 1 9" x 9" green floor tile Sample 620 is a QC for sample 619.
	Sample Results (% and type of asbestos)	None detected 20-25% chrysotile None detected	< 1% chrysotile	1-5% chrysotile < 1% chrysotile 1-5% chrysotile	10-15% chrysotile 5-10% chrysotile 5-10% chrysotile
	Sample #	634 635 823 824	825	820 821 822	619 620
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	l		α π	r.
Quantity	Estimated Amount	Unknown	,	28000	120000
	Condition (Good, Fair, or Poor)	Poor		Doo O	Good
	Friability (Non, Low, Mod. or High)	High		Non	No No
	Location (where material is found)	Bay 1, attic, north and east walls		Bays 1, 2 and 3, attic areas	Throughout building See Drawings 8/1-FT 8/3-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Unknown		Joint sealant	Floor tile & mastic
Material	Category (surfacing TSI or misc.)	Misc.		151	Misc.
	Homogen- eous Sample Area	ဖ		۲	ω

	Comments	CT 2 2' x 2' white w/uniform holes	CT 3 12" x 12" white w/random holes	CT 4 2' x 4' white replacement tile interspersed with CT 1.		
	Sample Results (% and type of asbestos)	35-40% chrysotile 30-35% chrysotile	None detected None detected	None detected None detected	None detected None detected None detected None detected None detected None detected	
	Sample #	611	617 618	636	604 603 614 621 626 628 630	
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	R H	SF	;	r L	
Quantity	Estimated	1000	7500	N X	8 400	
	Condition (Good, Fair, or Poor)	poog	Good	PooD	Good	
	Friability (Non, Low, Mod. or High)	No C	N C	Noo	c o Z	
	Location (where material is found)	Building entrances See Drawings 8/1-CT 8/2-CT	See Drawings 8/2-CT 8/3-CT	Scattered throughout building	Hallways & entrances throughout building	
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Ceiling tile	Ceiling tile	Fire code gypsun) board	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Surfacing	
	Homogen- eous Sample Area	σ	01	Ξ	21	

ACM Survey Results for Building 8 (continued)

	,	ple 600.	
	Comments	Sample 601 is a QC for sample 600.	
	Sample Results (% and type of asbestos)	None detected None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected None detected
	Sample #	600 601 610 613 625 627 629	603 605 627 623 623
Jantity	Unit of Measure- ment (SF, LF or # of fittings)	F.	π.
Quantity	Estimated Amount	54000	2000
	Condition (Good, Fair, or Poor)	poog	Good
,	Friability (Non, Low, Mod. or High)	c 0 Z	C O Z
	Location (where material is found)	Interior walls: throughout building Ceilings: custodial and telephone closets throughout building	Restroom walls & ceilings
Mutarial Doscription	Type (e.g., pipe insulation; floor tile)	Regular gypsum board	Plaster
Material	Category (surfacing TSI or misc.)	Surfacing	Surfacing
	Homogen- eous Sample Area	<u>~</u>	41

APPENDIX 8-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Recommendation for Building 8

		Materie	Material Description				
Functional Space	Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
Bay 1, attic, north wall	ம	TSI	Corrugated paper pipe insulation	ry .	91	O	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.

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Building

Cameron Station

Inspector/Date Barnes / Guardien

Material Type(s) Concert 2 Med

Homogeneous Sample Area #(s) Functional Space_

100

Part 1: Damage/Risk

5 High;

Visible evidence of physical damage:

4 Moderate;

2 Low; 1 Minimal; ((0) None

• Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) 3 Yes; Water damage:

°N (0)

3 <1 ft. or ceiling panel contaminated; 2 $1 \le ft < 5$; 1 ≥ 5 ft;

A. Sprayed- or trowelled-on:

3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required;

0 >5 ft & no routine maintenance

0 No routine maintenance

• Type of material (If area contains several friable materials, score the one with the greatest quantity). B. Pipe, boiler or duct insulation:

4 Ceilings/walls 04 Other friable material; (1) Boiler/pipe; 3 HVAC;

• Potential for Contact based on material proximity to area occupants:

< 10 ft: Ą.

> 10 ft:

ä

5 Medium; 2 Low 8 High;

5 High; 3 Medium; 0 Low

 Asbestos content: Use percentage for material with highest probability for becoming airbome: 5 > 50%; (1) $1 < \% \le 30;$ 3 $30 < \% \le 50;$

NO HAZARD Samples contain no asbestos

633 633 Sample Numbers:

6.58

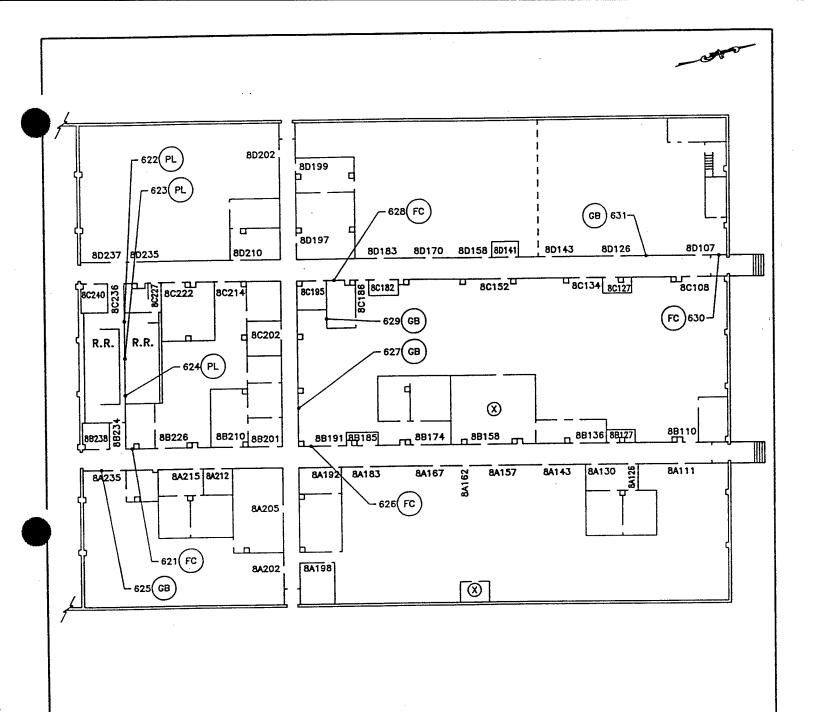
Damage/Risk Total

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Woodward-Clyde Federal Service

	1
1	
Homogeneous Sample Area #(s)	il.
Functional Space 8-1 Ba / Alle North Wall	
• Friability: 6 High; (3) Moderate; 1 Low	
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $10 < 100$; $2 100 < 100$; $3 > 1000 \text{ ft}^2$	
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)	
(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth	
• Ventilation: (Mark all categories that apply; maximum of 7 points.)	
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above	
• Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area	
• Activity (Refers to forces such as vibration, water or steam acting on material.)	
5 High (constant vibration); (2) Medium (occasional vibration); 0 Low	
• Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)	
• <u>Barriers</u> : (Mark all that apply but score only the higher of A or B; maximum of 4 points.)	
A. Sprayed- or trowelled-on ceiling or walls	
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None	-
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants	
$1 \le 25\%; 25 < \% \le 50; 350 < \% \le 75; (4) 75 < \% \le 100$	
• Population: $\begin{pmatrix} 1 \\ 1 \end{pmatrix} \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$; $5 > 1001$ or medical/youth centers/residential	
Exposure Total / ? Woodward-Clyde Federal Service	ě

APPENDIX 8-C BUILDING DRAWINGS



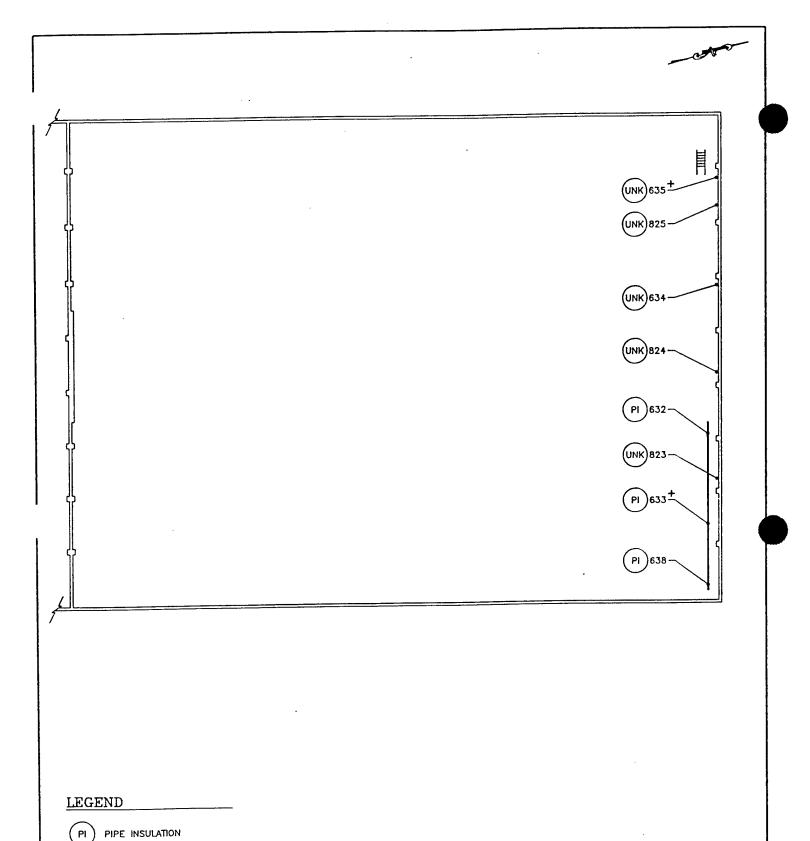
- PL PLASTER
- GB GYPSUM BOARD
- FC FIRE CODE GYPSUM BOARD
- (X) AREA NOT ACCESSED

Woodward-Clyde Federal Services

LOCATION Cameron Station, Alexandria, Virginia

BUILDING 8 - BAY 1
SAMPLE LOCATIONS

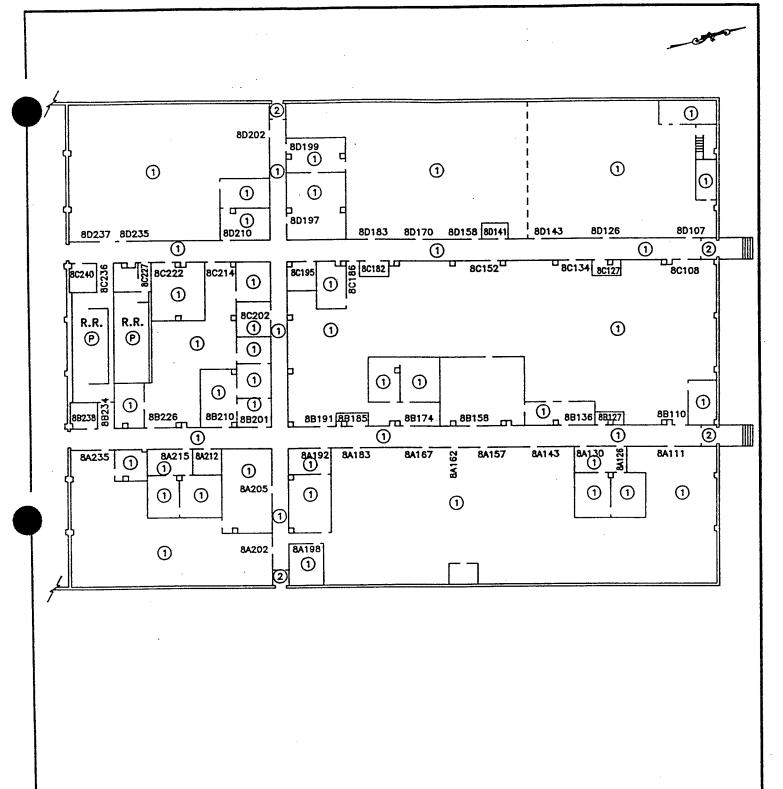
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UNKNOWN FUNCTION

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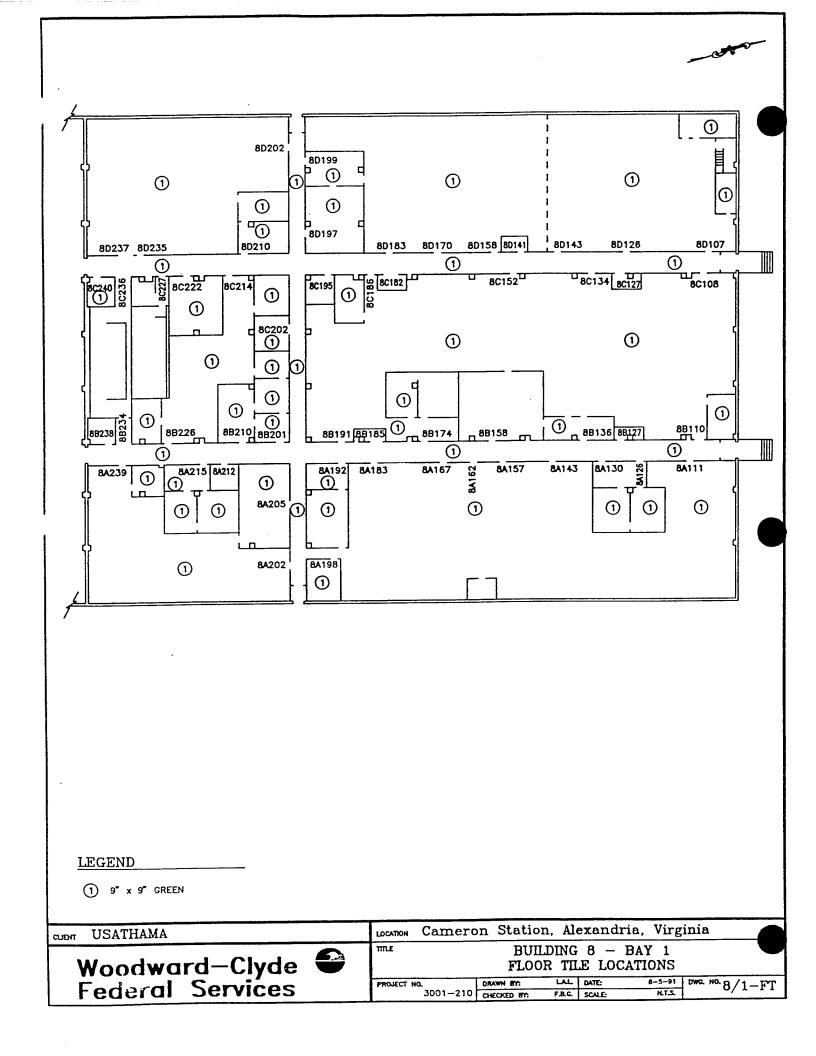


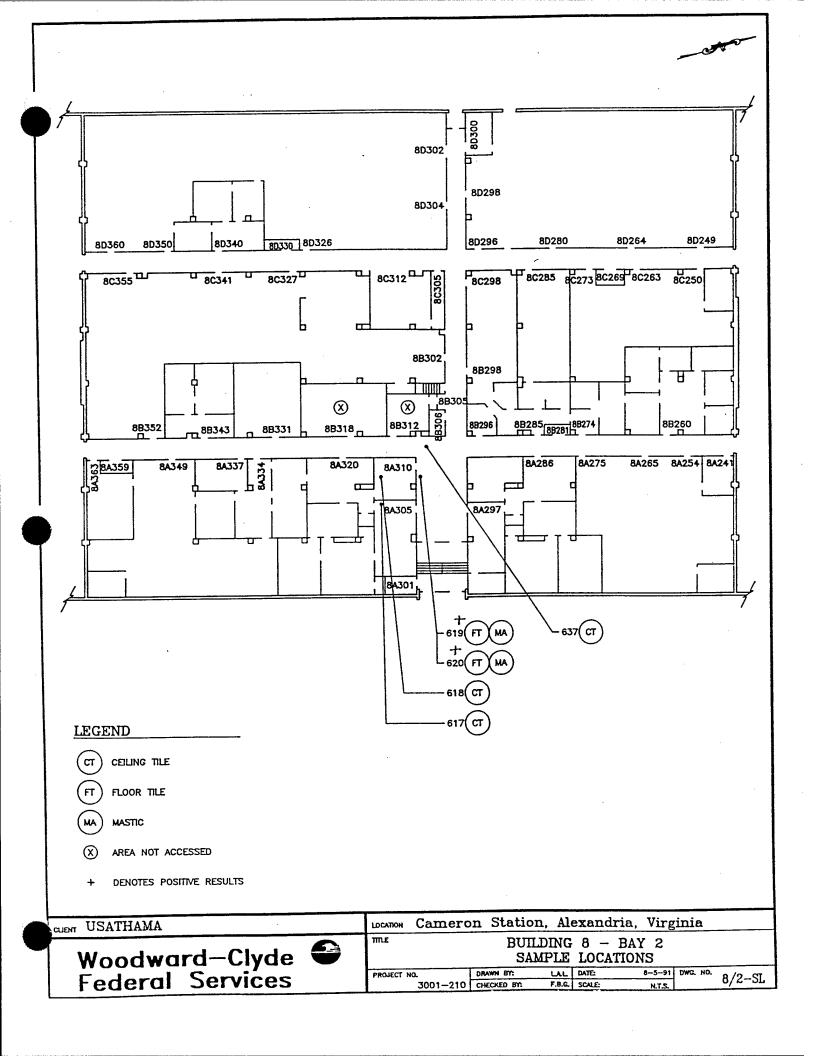
- 1 2' x 4' SMOOTH TEXTURE TILE
- 2 2' x 2' UNIFORM HOLE TILE
- (P) PLASTER

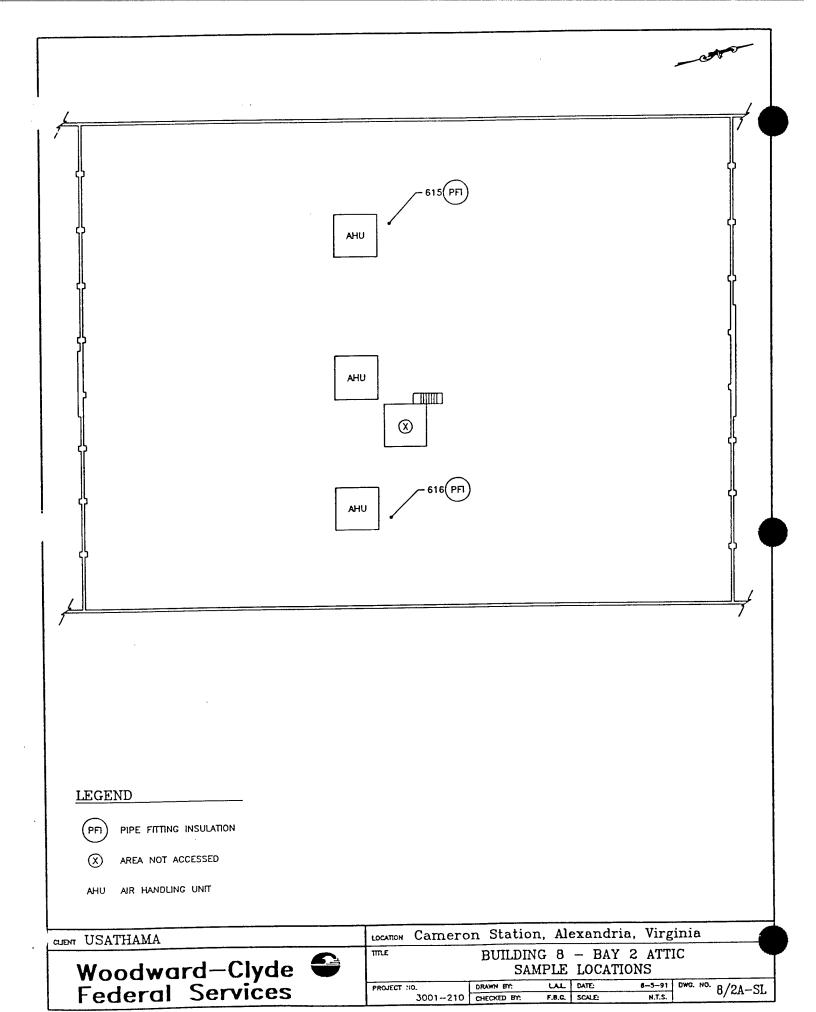
CUENT USATHAMA

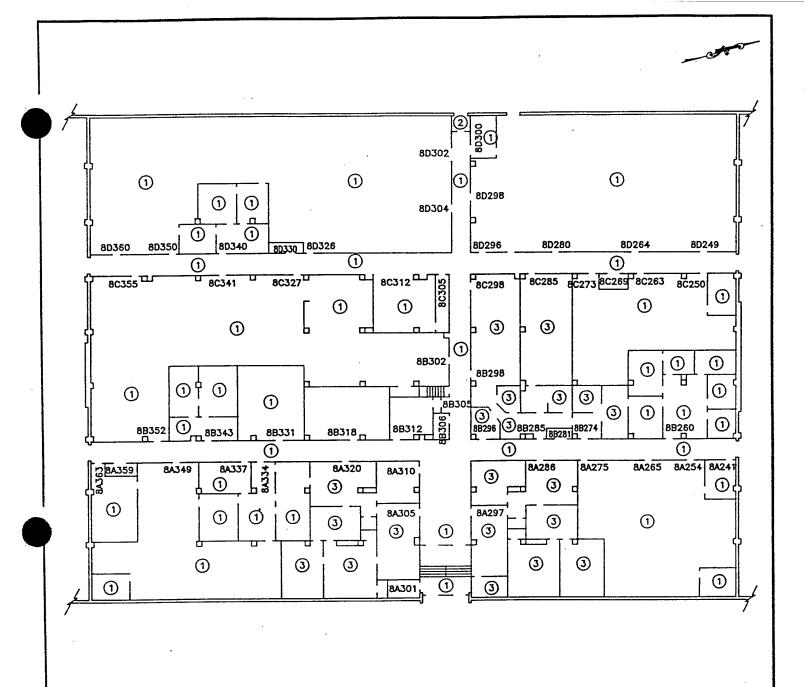
Woodward-Clyde	me	
Federal Services	PROJECT NO.	DRA
Ledetai Services	3001-210	CHE

LOCATION	Camero	n Station	i, Ale	exandria,	, Virg	inia	
TITLE		BUIL	DING	8 - BA	Y 1		
		CEILING	G TY	PE LOCA	TIONS		
PROJECT NO.		DRAWN BY:	LAL	DATE:	6-5-91	DWG. NO.	8/1-CT
	3001-210	CHECKED BY:	F.B.G.	SCALE:	N.T.S.		0/1-01









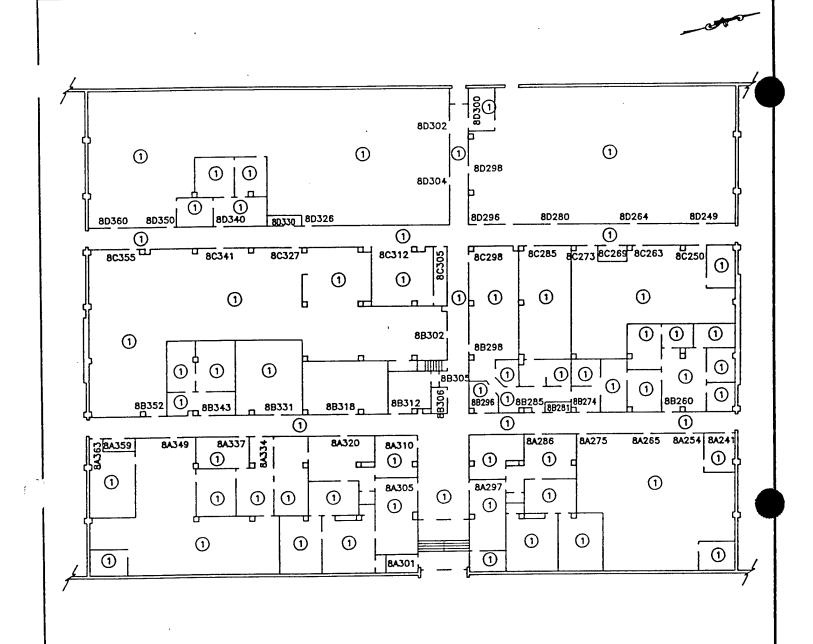
CLIENT USATHAMA

- 1) 2' x 4' SMOOTH TEXTURE TILE
- (2) 2' x 2' UNIFORM HOLE TILE
- 3 12" x 12" RANDOM HOLE TILE

Woodward-Clyde Federal Services



LOCATION	Camero	n Station,	_Al	exar	idria, '	Virg	inia	
TITLE		BUILD		-	- BAY			
PROJECT N		DRAWN BY:		DATE:	8-	-591	DWG. NO.	8/2-CT
	3001-210	CHECKED DI.	1.0.0.	SCALE		MTS 1		<u> </u>



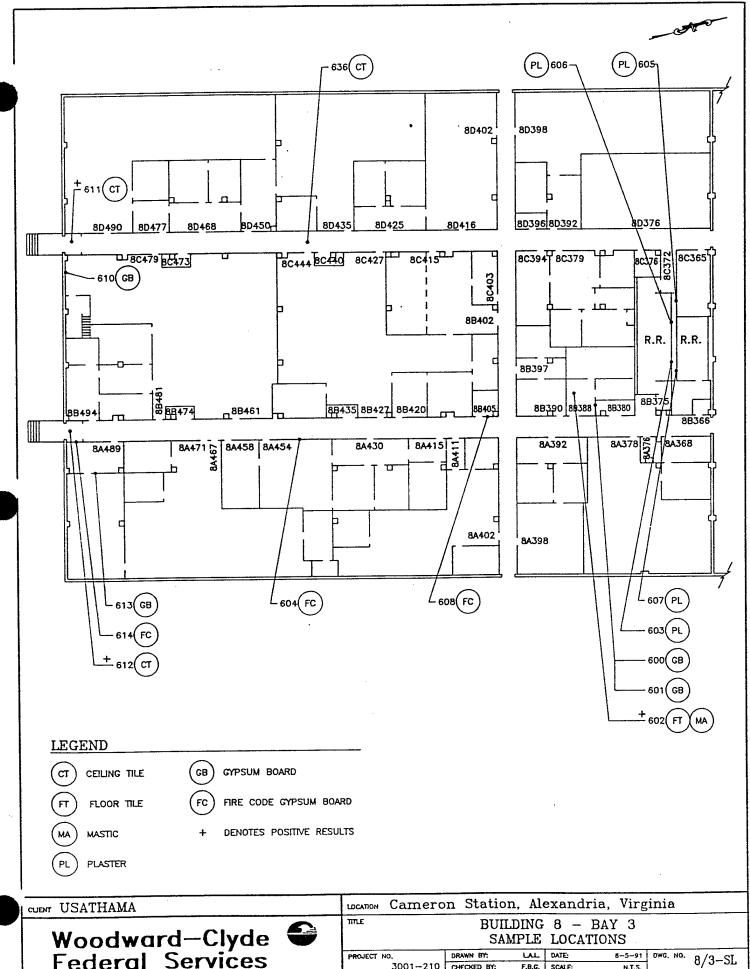
1 g" x g" GREEN

CLIENT USATHAMA

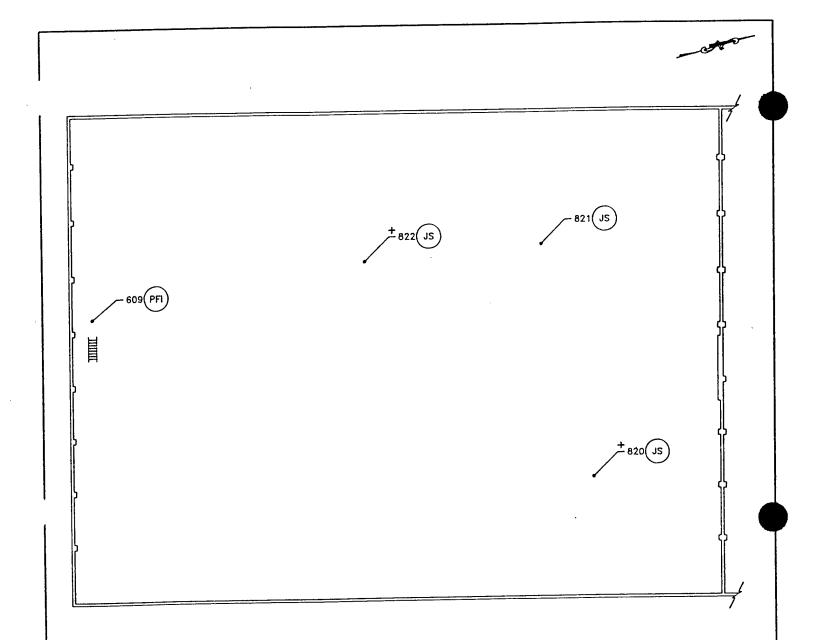
Woodward-Clyde Federal Services



LOCATION Camero	n Statio	n, Al	exand	ria, Virg	ginia	
TITLE	BUII	DING	8 -	BAY 2		
	FLOO	R TII	E LO	CATIONS		
PROJECT NO.	DRAWN BY:	LAL	DATE:	6-5-91	DWG. NO.	8/2-FT
3001-210	CHECKED BY:	F.B.C.	SCALE	N.T.S.	<u> </u>	0/2-F1



Woodward-Clyde Federal Services 5-5-91 DWG. NO. 8/3-SL 3001-210 CHECKED BY: F.B.G. SCALE:





PIPE FITTING INSULATION



JOINT SEALANT

+ DENOTES POSITIVE RESULTS

Ct IEM	USATHAMA	
CLIENT	ODWITTEM	

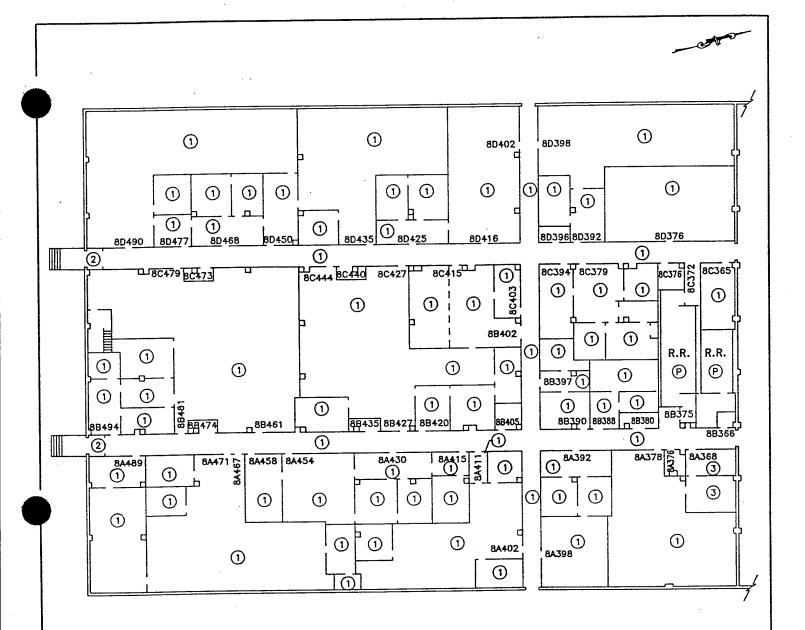
Woodward-Clyde Federal Services



LOCATION	Cameron	Station,	Al	exe	andri	a,	Virginia
TITLE	•	BIIIDING	8		BAY	3	ATTIC

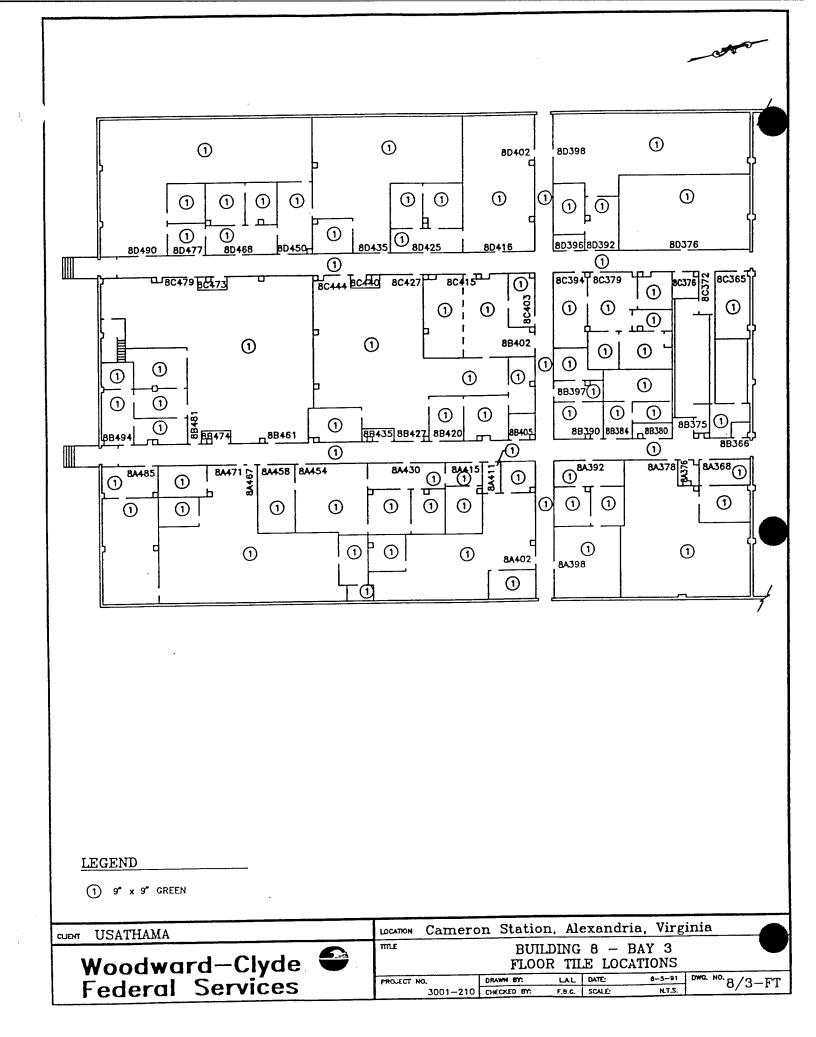
BUILDING 8 - BAY 3 ATTIC SAMPLE LOCATIONS

PROJECT NO.	DRAWN BY:	LAL	DATE	6-5-91	DWG. NO. 8/3A-SL
3001-210	CHECKED BY:	F.B.C.	SCALE	N.T.S.	0/811 82



- 1) 2' x 4' SMOOTH TEXTURE TILE
- (2) 2' x 2' UNIFORM HOLE TILE
- 3 12" x 12" RANDOM HOLE TILE
- P PLASTER

CLIENT USATHAMA	LOCATION Camero	n Station, Al	exandria, virg	ginia	
Woodward-Clyde	TILE		: 8 — BAY 3 ILE LOCATIONS	3	
Federal Services	PROJECT NO. 3001-210	DRAWN BY: LAL. CHECKED BY: F.B.C.		DWG. NO. 8/3	3-CT



APPENDIX 8-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Station				Walkthrough Survey . Sheet 1 of
Building 8 DLA/DFSC		EXTERIOR	IOR	Inspector Date Gaardia / Barnes
Exterior Siding				
Masonry ∯ Steel/Ali	Steel/Aluminum	□ poo _M	Asbestos Cement Shingle	Asphalt Shingle
Other	Soffit	П		
Sample Y	Condition G	F P	QuantitySF	
Roof Shingle (asphalt/fiberglass) □	Assumme Tar & Felt	Steel Panel	Fiberglass Panel	Other
Sample Y N	Condition G	F. P	Quantity 130,00% SF	
Exterior Mechanical Systems	Sample ·	Condition	Quantity	Location
Vent pipe 🛍	×	GFP		
Chimney \square	X (GFP		
Louvers (D	x Ø	G F P		
A/C Units	X	GFP		
Other	z	G F P		
		S	STRUCTURAL	
Wood Joists/Beams 图	Steel Joists/Beams &	Wood Columns 2	Z Steel Column Z	Concrete Column 27
Sample Y N	Condition G	ŗ.	Quantity SF	
Sample Y N	Condition	स	Quantity SF	
Firewalls - Steel	Masonry 2		Firedoor	
Sample Y (N)	Condition G	ŗ.	Quantity SF	
				Woodward-Clyde Federal Services

November 16, 1

2 of 4

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

	•	
•	Duilding	Dulluling

Cameron Sta

Building					Inspector/Date:		
	QI ##	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler Nom							
1							
Breeching Now							
Fumace Men							
NW X		X	÷				
-Elect./Telephone							
Fhom closet	t Have	increte flows	by word	walk. Sys	Sypsum hours a	certing	
& sam tound		2)	-
closet							
Other							
AHU Vibyitim					Ass word		25 02/2
*Type of Insulation:	S Trowelled-on						

Trowelled-on
 Mud
 Other

Premold
 Blanket
 Aircell
 Fiberglass

Woodward-Clyde Federal Services

3 of 4

Cameron Station

HVAC

Building	\$				Inspector/Date:	/Date:		
	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Bro 1-3		برح ح	N				
	ò							
				·				
Pipe	Br 1-3	>	34	V				
	By I with	/	corrected	×	Q	75-	77	
			andres					
Fittings	S-1 CAUSI	>	much	>	,	> 300	#	
Other								
	Best othe	who	fluth	material on	Si Hourd	Λ.		
		sh.	de 200	Bon not	- assume Och	n Ocm		
			8					
*Type of Insulation:	1:							

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

November 19, 1990

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Cameron Station

	Quantity	110.024	1000	150			NO 071.		840an	24004		, 5 car	
ate:	Condition G F P	Ś	7	6	5		5		Ś	6		6	
Inspector/Date:	Sample Y N	>	×	1	Ż		>		X	`\		ン	
	Location	Thoughout		1	mxedin w/cr 1		Thank int	0	Helleray R. to trans	Iskur walls		Resposmo	
	Color/Pattern	white smoth	" lande bl	" " ""	- Chr		0						
301 Iding &	Material*	2 × 6		, , , , , , , , , , , , , , , , , , ,			2 ×6			Coros Coros Coros	825	7/3, 2-	

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Woodward-Clyde Federal Services

APPENDIX 8-E LABORATORY CERTIFICATE OF ANALYSIS

CERTIFICATE OF ANALYSIS

AH

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

Bldg # : 8
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91 Date Analyzed : 02/26/91 Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED H 0 SUMMARY

		COMMENT	•														
	ANALYST	1D**		AS	AS	SA AS	SE	S¥.	88	AS	AS	SE SE	NS.	AS	AS	88	A.S
		PARTICULATE		85-90	95-99	85-90	100	90-95	100	100	100	95-99	65-70	85-90	60-65	65-70	95-99
AL &/		OTHER		1	!	1	1	1	1	i	3 3	1	1		:		
S MATERI	ORGANIC	FIBERS		10-15	01-05	1		05-10	1	!		01-05	₽	10-15			01-05
R FIBROU	MINERAL FIBROUS ORGANIC	GLASS		!	1		1	1	1	!	1	₹		1	1	-	
/ OTHER FIBROUS MATERIAL &/	MINERAL	MOOT		!	1 1 1	1	1		1	!	1		30-35		1	1	1
/	ANTHOP-	HYLLITE		1	1	; ; ;	1		1	!	1	1 1 1	1	1	3 3 3	3 3 9 1	; ; ;
1	TREMO- ACTIN- ANTHOP-	OLITE		!	1		1	1	1	1	1	1	1		1	}	!
so		LITE		1	1	1		1	!	!	!	!					1
- ASBEST	CROCIDO-	LITE		1	1	1	1	1		1	!		1		1	1	1
1		AMOSITE			;	!	!	1		;	:	;	1	!	1 2 2		
//	CHRYSO-	TITE		1 1	1	10-15	1	1	}	1	!	1	!	1	35-40	30-35	
	ASBESTOS	PRESENT*		×	z	ρ,	z	×	×	Z	×	z	Z	z	ц	Δ,	z
	SAMPLE	Ωī		600	601	602	603	604	605	909	607	809	609	610	611	612	613

COMMENTS: * P = ASBESTOS PRESENT ** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

Control of the superior of the property of the superior of the

Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

8 Bldg #

Job Number: 3001

Job Site

CERTIFICATE OF ANALYSIS

: Cameron Station

: 02/20/91 Date Sampled

Person Submitting: David Barnes : 02/26/91 Date Analyzed

MICROSCOPY LIGHT POLARIZED **Н**О SUMMARY

		COMMENT														
	ANALYST	ID**	AS	SS	УS	SS	ys	A.S	SX.	SZ.	ŞŽ	3,3	УЗ	A.S	ys.	233
		PARTICULATE	85-90	65-70	65-70	10-15	05-10	90-95	90-95	80-85	100	100	100	80-85	75-80	90~95
AL 8/	_	OTHER	1		!	1	1	1	7		!			;		:
S MATERI	ORGANIC	FIBERS	10-15	₹	₹	85-90	90-95	7	7	15-20			1	15-20	20-25	05-10
R FIBROU	MINERAL FIBROUS ORGANIC	GLASS	₽		!	1		1	-	1	1				1	7
/ OTHER FIBROUS MATERIAL &/	MINERAL	MOOL		30-35	30-35	1	1	1	1	1	1	1	1	1		1
// ASBESTOS \$/	NYTHOP-	HYLLITE	1 1 1	1 1 1	!	9 1 1 1	;	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	-	1 1 1	1	1	1		!	1
	TREMO- ACTIN- ANTHOP-	OLITE			;		1	;		1		1	;	1	1	!
* SO		LITE	1		1) 	!	!	!		;		!	1	!
- ASBEST	CROCIDO-	LITE	!	;		!	!		1	1	1	!		1	!	1
				!	1	;	1	•			!	!	;	1	!	
//	CHRYSO-	TILE AMOSITE	1		1			05-10	05-10		1	!		1	1 1	1 1 1
	ASBESTOS	PRESENT*	z	z	z	×	z	Д	Δ	×	z	z	z	z	z	Z
	SAMPLE	Ü	614	615	616	617	618	619	620	621	622	623	624	625	626	627

COMMENTS: * P = ASBESTOS PRESENT

N = ASBESTOS NOT OBSERVED

** ANALYST ID CODE (SEE LAST PAGE)

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CERTIFICATE OF ANALYSIS

¥ + #

Woodward-Clyde Federal Services
1 Church St. Sulte 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 8
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/20/91

Date Analyzed : 02/26/91 Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED **H** SUMMARY

COMMENT				÷										
ANALYST ID**	AS	AS	SZ.	AS.	AS	AS.	S 2	SS.	AS	AS	A.S	æ	A.B	æ
PARTICULATE	90-95	80-85	80-85	85-90	10-15	30-40	100	75-80	65-74	55-64	15-20	70-80	85-90	86-06
CAL 4/	!	1		1	1		1	1	1 1 1	1) ; ;	1	7	!
S MATERI ORGANIC FIBERS	05-10	15-20	15-20	10-15	85-90	35-40	1	!	25-30	35-40	80-85	₹	₽	01-02
CTHER FIBROUS MATERLI MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	1	1		1	1	1	1		1	1		1	10-15	1
/ OTHER FIBROUS MATERIAL \$/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	1	1	1	1	1	1	1	1	01-05	01-05	1	20-25	1	₹
/	ļ	1	1	1	1	1		!	1	!	3 3 3 3	1	1	1 1 1
INEMO- ACTIN- ANTHOP- LITE OLITE HYLLITE			1	1	1	1	1	1						
OS # TREMO- LITE	† } !	1	1	1	1	1	1	1	!	1	}	1		1
- ASBEST CROCIDO- LITE		•	1		1	!		:	!	;	1	1	1	1
AMOSITE	1	!	!		!	1	!	!	1	1	1	1	1	1
CERYSO- TILE A	1	-	1	1	1	25-30	1	20-25	-	1	₹	01-05	7	01-05
ASBESTOS PRESENT*	z	z	z	Z	z	Д	z	ц	z	z	ρ,	Д	Α	Ω
SAMPLE ID	628	629	630	631	632	633	634	635	636	637	638	820	821	822

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these taboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

COMMENTS: * P = ASBESTOS PRESENT

in a company that P (#1145) According to the contenty

Woodward-Clyde

Woodward-Clyde Federal Sarvices

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

: Cameron Station

Bldg # Job Site Job Number: 3001

CERTIFICATE OF ANALYSIS

Date Sampled : 02/20/91
Date Analyzed : 02/25/91

Date Analyzed : 02/26/91
Person Submitting: David Barnes

MICROSCOPY LIGHT POLARIZED **国** SUMMARY

		COMPRENT				
	ANALYST	10## 110##	2		8	2
		PARTICULATE	100	1	100	100
/ * T		OTHER	;		:	1
MATERI	ORGANIC	FIBERS	Ţ	•	7	7
/ OTHER FIBROUS MATERIAL &/	MINERAL FIBROUS ORGANIC	WOOL GLASS FIBERS OTHER	;		!	}
	MINERAL	MOOT	!		1 1 1	
/ ASBESTOS &/	ANTEOP-	HYLLITE	;		!	1
	ACTIN-	TITE	į			1
	TREMO-	LITE			1	
	CROCIDO- TREMO- ACTIN- ANTHOP-	LITE	ļ		1	ļ
		MOSITE				
	CHRYSO-	TITE ?	1) 		7
	ASBESTOS CHRYSO-	PRESENT* TILE AMOSITE	2	5	z	ρι
	SAMPLE	ដ	c	670	824	825

** ANALYST ID CODE (SEE SIGNATURE)

- ASBESTOS NOT OBSERVED

COMMENTS: * P = ASBESTOS PRESENT

LAST PAGE OF 4 PAGE(8)

Samples. Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation

Andreas Saldivar (RS)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these. I aboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





APPENDIX 8-F SAMPLE CHAIN-OF-CUSTODY FORMS

3001 WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde eral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES coc By: Д→

Field Office: Woodward-; Federal Services
Building 17
Door 2
Cameron Station
Alexandrio, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services
One Church Street, Suite 404
Rockville, MD 20850
301 309-0800

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Gold: WCFS Project Scientist

0. 3001 WCFS Pro

Installation (2); CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECURD - USATHAMA SAMPLES ederal Services Woodward-Clyd

COC By: 0 111 13

. yde Federal Service Field Office: Work
Built
Door Z
Cameron Station
Alexandria, VA 22304
703 617—7373

Admin. Office: Woodward—Clyde Federal Service One Church Street, Suite 404 Rockville, MD 20850 301 309—0800

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White & Yellow: AMA Analytical Services, Inc.

Pink: WCFS Project File

Gold: WCFS Project Scientis

. 3001 WCFS Project

BEI

Installation (2): CM Sample Program (3): Laboratory (2):

Woodward-Clyde deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

coc By: 210018

Federal Services

Field Office: Woodward Federal Building 1 Door 2 Cameron Station Alexandria, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Field Office: Woodward· Federal Building 1; Door 2 Comeron Station Alexandria, VA 22304 703 617~7373

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Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Field Office: Wood
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BUILDING 9

9.1 DESCRIPTION

Building 9 is a large (greater than 190,000 square feet) masonry, timber and concrete structure with a flat tar, felt and gravel roof. Building 9 was initially constructed with open sides and was used as a storage facility. In the early 1960s, the building was enclosed with wood siding and converted to office and warehouse use. More recently, aluminum siding has been added over the wood siding. The building is divided into five bays by masonry firewalls. It is heated by natural gas; no steam lines enter the building.

Current occupants are:

- Bay 1 MDW Property Control Services
- Bay 2 Outdoor Recreation and Self-Service Supply
- Bay 3 Ft. Myer Commissary Warehouse
- Bay 4 EA/CA Supply Center
- Bay 5 Motor Pool

9.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 9-A through 9-F. A summary of this data is presented below.

9.2.1 Suspect Friable ACM

Three homogeneous areas of suspect friable ACM were identified and ten bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following three materials:

- Pipe fitting insulation
- Trowelled-on duct insulation
- Corrugated paper pipe insulation

These friable materials were found in three functional spaces and were assessed as follows:

- Pipe fitting insulation in Bay 5. Assessment of this material indicates a damage factor of 10 and an exposure factor of 14. According to the GAHA Index, this material ranks as Priority C.
- Pipe fitting insulation and corrugated paper pipe insulation in Bay 1, attic area.
 Assessment of this material indicates a damage factor of 10 and an exposure factor of 14. According to the GAHA Index, this material ranks as Priority C.
- Trowelled-on duct insulation in Bay 1 inside Door 8. Assessment of this material indicates a damage factor of 13 and an exposure factor of 19. According to the GAHA Index, this material ranks as Priority B.

9.2.2 Suspect Nonfriable ACM

Fifteen homogeneous areas of suspect nonfriable ACM were identified and thirty-seven bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following six materials:

- FT 1 9" x 9" black floor tile and mastic
- FT 3 9" x 9" brown floor tile and mastic
- FT 4 9" x 9" green floor tile and mastic
- FT 5 9" x 9" tan floor tile and mastic
- FT 7 12" x 12" black floor tile and mastic
- FT 8 12" x 12" green floor tile and mastic
- FT 9 12" x 12" brown floor tile and mastic

No assessment of these nonfriable asbestos-containing materials was performed. However as ACM they should be included in an O&M Program.

9.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

9.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and reclassified as nonsuspect:

- CT 2 2' x 4' white w/black streaks fiberglass ceiling tile
- CT 6 2' x 4' white w/fissures fiberglass ceiling tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

9.4 AREAS NOT ACCESSED

The following areas in Building 9 were not accessed:

- Overhead area in Bay 4;
- Sprinkler system equipment room in Bay 4.

9.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
9		50 SF TSI	34 MF 70 LF PI

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

9.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 9-A ACM Survey Results

Appendix 9-B Assessments/Recommendations for Friable ACM

Appendix 9-C Building Drawings

Appendix 9-D Walkthrough Survey Data Sheets

Appendix 9-E Laboratory Certificate of Analysis

Appendix 9-F Sample Chain-of-Custody Forms

APPENDIX 9-A ACM SURVEY RESULTS

ACM Survey Results for Building 9

Σ	Aaterial C	Material Description				Quantity	ıtity			
Category (surfacing TSI or misc.)		Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
Misc.	 	Tar and felt	Roof	Non	рооб	> 190000	SF	Assume ACM	Assume ACM	
		Pipe fitting insulation	Bay 5, east wall & above office area. Bay 1, attic above Door 8	Mod.	Fair	4 4	# of fittings	126 145 155	5-10% Chrysotile 1-5% Chrysotile 1-5% Amosite	
		Trowelled-on duct insulation	Inside Door 8	Mod.	Fair	20	R.	117 128 130 133	25-30% Chrysotile 40-45% Chrysotile 35-40% Chrysotile 25-30% Chrysotile	Sample 128 is a QC for sample 117.
		Corrugated paper pipe insulation	Bay 1, attic above restroom & storage room	Mod.	Poor	70	F	140 142 143	30-35% Chrysotile 35-40% Chrysotile 35-40% Chrysotile	 pipe diameter with insulation. Also several lengths of insulation loose on attic floor.
Misc.		Floor tile & mastic	See Drawing 9/1-FT	CoN	Fair	700	SF	110	5-10% Chrysotile 1-5% Chrysotile	FT 1 9" x 9" black floor tile
Misc.		Floor tile & mastic	See Drawing 9/1-FT	c o Z	Fair	80	r.	111	< 1% Chrysotile < 1% Chrysotile	FT 2 9" x 9" gray floor tile

Woodward-Clyde Federal Services July 2, 1991

ACM Survey Results our Building 9 (continued)

	Comments	FT 3 9" x 9" brown floor tile	FT 4 9" x 9" green floor tile	FT 5 9" x 9" tan floor tile	FT 6 12" × 12" white floor tile	FT 7 12" x 12" black floor tile	FT 8 12" x 12" green floor tile	FT 9 12" x 12" brown floor tile		
	Sample Results (% and type of asbestos)	1-5% Chrysotile 1-5% Chrysotile	<1% Chrysotile 1-5% Chrysotile	1-5% Chrysotile 1-5% Chrysotile	<1% Chrysotile None detected	1-5% Chrysotile 1-5% Chrysotile	None detected None detected 3-4% chrysotile ²	1-5% Chrysotile 1-5% Chrysotile		¹ using PLM ² using TEM
	Sample #	123 154	109	121 125	131	147	144	152 153		
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	S.	r.	R.	r.	RS.	R.	R.		
Quantity	Estimated Amount	420	5100	1500	2400	100	1500	1300		
	Condition (Good, Fair, or Poor)	Fair	Good	Fair	D 00 0	Good	Good	Good		
	Friability (Non, Low, Mod. or High)	Non	Non	Non	. coN	Non	Non	Non		
	Location (where material is found)	See Drawings 9/1-FT 9/5-FT	See Drawings 9/1-FT 9/2-FT 9/5-FT	See Drawing 9/1-FT	See Drawings 9/2-FT 9/3-FT 9/4-FT 9/5-FT	See Drawing 9/2-FT	See Drawing 9/5-FT	See Drawing 9/5-FT		
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic		
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.	Misc.	Misc.		
	Homogen- eous Sample Area	7	. ω	თ	01	<u>-</u>	12		-	

ACM Survey Results ...r Building 9 (continued)

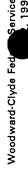
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	Comments	FT 10 12" x 12" white marbled floor tile	CT 1 2' x 4' white w/rough texture	CT 3 2' x 4' white w/fissures Sample 127 is a QC for sample 112.	CT 4 12" x 12" white w/random holes	CT 5 12" x 12" white w/small holes	Sample 139 is a QC for sample 137.
	Sample Results (% and type of asbestos)	None detected None detected	None detected None detected	None detected None detected None detected	None detected None detected	None detected None detected	None detected None detected None detected None detected None detected None detected None detected
	Sample #	135 136	113	112 118 127	122 124	146 150	119 129 132 133 139 141
tity	Unit of Measure- ment (SF, LF or # of fittings)	SF	π.	r.	R R	SF	α π
Quantity	Estimated Amount	300	132	4200	360	610	34000
	Condition (Good, Fair, or Poor)	Poog	Poog	poog	Good	goog	poog .
	Friability (Non, Low, Mod. or High)	Non	No	Non	Non	No	C O N
	Location (where material is found)	See Drawing 9/4-FT	See Drawing 9/1-CT	See Drawings 9/1-CT 9/2-CT 9/3-CT 9/5-CT	See Drawing 9/1-CT	See Drawings 9/3.CT 9/5-CT	Walls: Finished areas throughout building Ceilings: See Drawings 9/4-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Ceiling tile	Ceiling tile	Ceiling tile	Ceiling tile	Gypsum board
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.	Surfacing
	Homogen- eous Sample Area	14	25	16	17	<u>∞</u>	9



APPENDIX 9-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/kccommendation for Building 9.

		Material Descripti	uo				
Functional Space	Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g. pipe fitting insulation)	Damage/Risk Factor	Exposure Factor	GAHA Index	Recommended Management Corrective Action
9-1 Bay 5, along east wall and above office area	77	TSI	Pipe fitting insulation	01	14	U	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
9-2 Bay 1, attic area above Door 8, restroom and storage area	2, 4	TSI	Pipe fitting insulation, corrugated paper pipe insulation	0	41	O	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
9-3 Bay 1, inside Door 8	м	1 5	Trowelled-on duct insulation	د	91	ω	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schadule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.



Woodward-Clyde Federal Servi

November 19, 1

Cameron Station Building 9 [25] 91
Homogeneous Sample Area #(s)
Functional Space (34) 5 along touch world if above of the areas
Part 2: Exposure
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $(1) 10 \le \text{ft}^2 < 100$; $2 100 \le \text{ft}^3 < 1000$; $3 \ge 1000 \text{ ft}_2$
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
4 Rough; (3) Pitted; 2 Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply; maximum of 7 points.)
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 0 None of the above
• Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
• Activity (Refers to forces such as vibration, water or steam acting on material.)
5 High (constant vibration); 2 Medium (occasional vibration); 60 Low
• Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$(1) \le 25\%$; 2 25 < % \le 50; 3 50 < % \le 75; 4 75 < % \le 100
• Population: $1 \le 9$ or for corridors, $2 \le 10 \le \text{pop} \le 200$; $3 \times 201 \le \text{pop} \le 500$ $4 \times 501 \le \text{pop} \le 1000$; $5 > 1001$ or medical/youth centers/residential
Exposure Total // Woodward-Clyde Federal Servic

November 19, 15

Woodward-Clyde Federal Servic

Cameron Station Building 9 Inspector/Date Branco Collingly 1/25/61
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cormatel
• Friability: 6 High; (3) Moderate; 1 Low
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $10 \le \text{ft}^2 < 100$; $2 100 \le \text{ft}^2 < 1000$; $3 \ge 1000 \text{ ft}_2$
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply; maximum of 7 points.)
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 0 None of the above
• Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
• Activity (Refers to forces such as vibration, water or steam acting on material.)
5 High (constant vibration); 2 Medium (occasional vibration); 0 Low
• Floor: 4 Carpet; (2) Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$(1) \le 25\%; 25 < \% \le 50; 350 < \% \le 75; 475 < \% \le 100$
• Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$; $5 > 1001$ or medical/youth centers/residential
Exposure Total /t/ Woodward-Clyde Federal Service

November 19, 199

Cameron Station Building 9 (125/9)
Homogeneous Sample Area #(s) 3 Shared All Material Type(s) Thomas And Charles (s) Sample Area #(s)
Functional Space 9-3 13ml more la Door 8
Part 1: Damage/Risk
• <u>Visible evidence of physical damage</u> : 5 High; A Moderate; 2 Low; 1 Minimal; 0 None
• Water damage: 3 Yes; O No
• Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1 ≤ ft <5; 1 ≥5 ft; 0 ≥5 ft & no routine maintenance
B. Pipe, boiler or duct insulation: 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; 0 No routine maintenance
• Type of material (If area contains several friable materials, score the one with the greatest quantity).
0-4 Other friable material; 1 Boiler/pipe; (3) HVAC; 4 Ceilings/walls
• Potential for Contact based on material proximity to area occupants:
A. $< 10 \text{ ft}$: 8 High; 5 Medium; $\stackrel{\frown}{(2)}$ Low
B. \geq 10 ft: 5 High; 3 Medium; 0 Low
 Asbestos content: Use percentage for material with highest probability for becoming airborne:
$1.1 < \% \le 30$; $3.0 < \% \le 50$; $5.5 > 50\%$; NO HAZARD Samples contain no asbestos
• Sample Numbers: 128, 130, 133
Damage/Risk Total //3

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() () () () () () () () () ()
• Friability: 6 High; (3) Moderate; 1 Low
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $(1) < 10 < 100$; $(2) < 100 < 100 < 100)$; $(3) > 1000 \text{ ft}^2$
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
4 Rough; 3 Pitted; 2 Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply; maximum of 7 points.)
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; 0 None of the above
• Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
• Activity (Refers to forces such as vibration, water or steam acting on material.)
(5) High (constant vibration); 2 Medium (occasional vibration); 0 Low
• Floor: 4 Carpet; 2 Seamed or rough surface; A Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$1 \le 25\%$; $2 \le 5 < \% \le 50$; $3 \le 0 < \% \le 75$; $4 \longrightarrow 75 < \% \le 100$

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Woodward-Clyde Federal Servic

5 > 1001 or medical/youth centers/residential

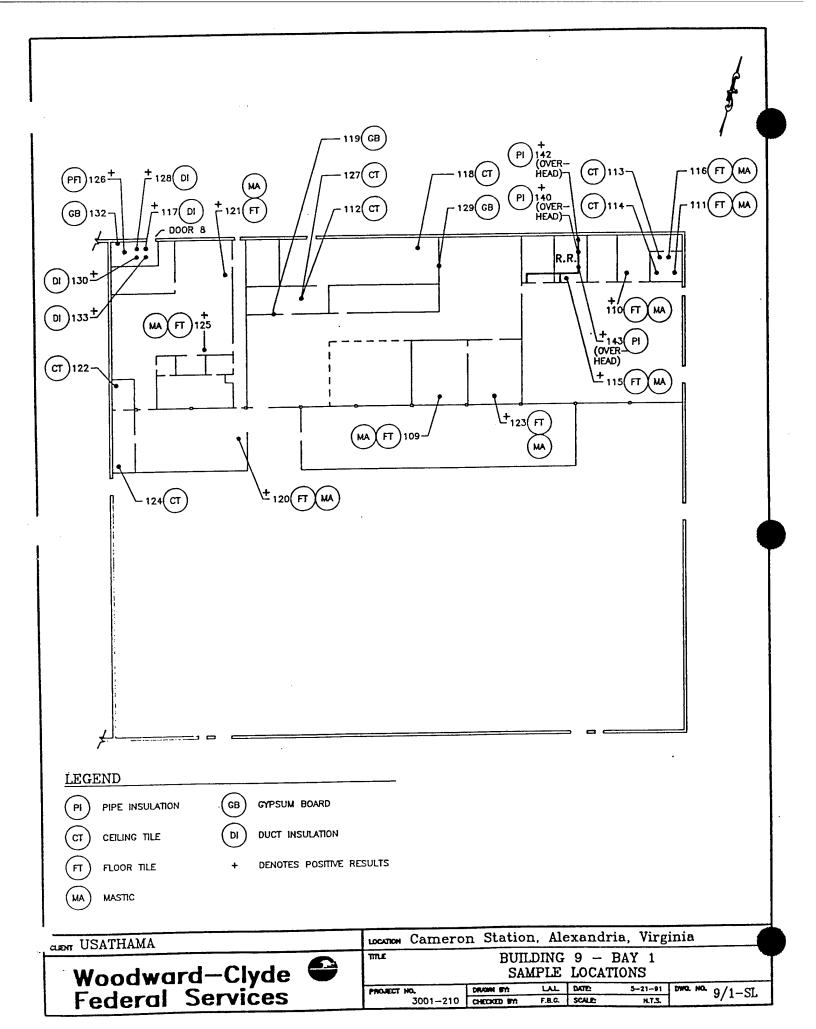
4 $501 \le pop \le 1000$;

 $3 201 \le \text{pop} \le 500$

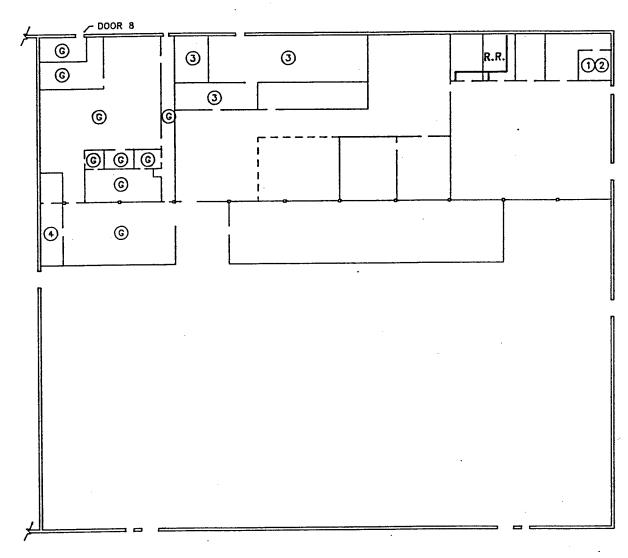
• Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$;

Exposure Total_

APPENDIX 9-C BUILDING DRAWINGS

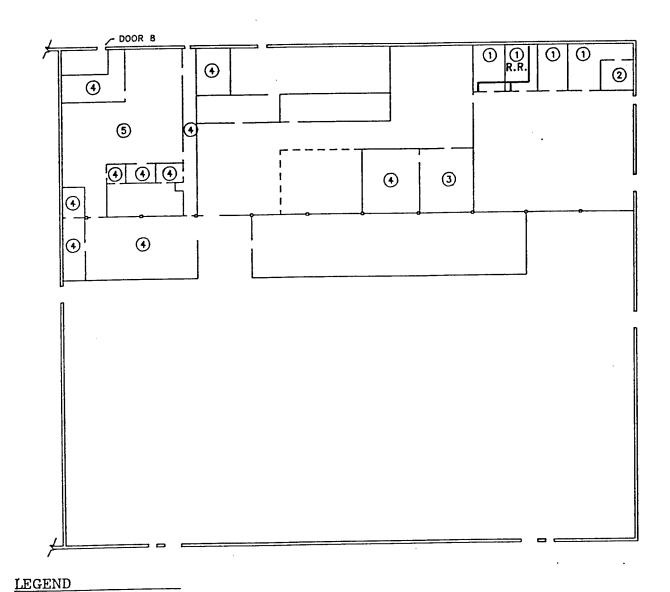






- 1 2' x 4' ROUGH TEXTURED TILE
- 2 2 x 4' TEXTURED FIBERGLASS TILE
- 3 2° x 4° FISSURED TILE
- 4 12" x 12" RANDOM HOLE TILE
- G GYPSUM BOARD

USATHAMA	LOCATION Camero	n Station, Ale	exandria, Virg	inia	
Woodward-Clyde	TIME		9 - BAY 1 PE LOCATIONS	<u> </u>	
Federal Services	PROJECT NO.	DRAWN BY LAL	DATE: 5-21-91	DWG. NO.	9/1-CT
Lengini pervices	3001-210	CHECKED In F.B.G.	SCALE: N.T.S.	l	a/ 1-C1



(5) ST X ST TAN

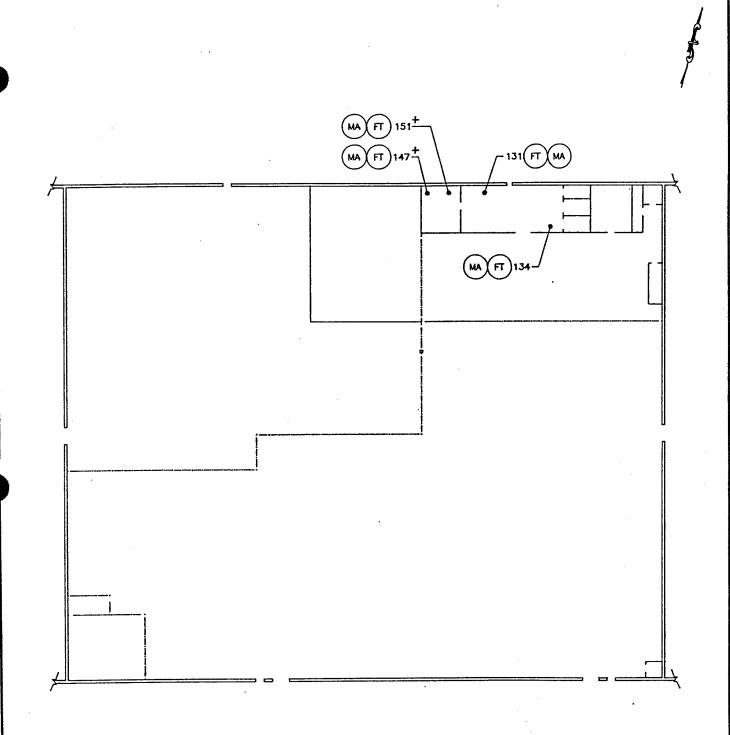
1 9" x 9" BLACK

9" x 9" BROWN
9" x 9" GREEN

Woodward-Clyde Federal Services



LOCATION	Cameron	Station	, Ale	exandria	, Virg	inia	
TITLE				9 – B. E LOCA			
PROJECT I	10.	DRAWN BY:	LAL	DATES	5-21-91	DWG. NO.	9/1-F
	3001-210 F	CHECKED BY	F.B.C.	SCALE	N.T.S.	1	9/1-1



(FT) FLOOR TILE

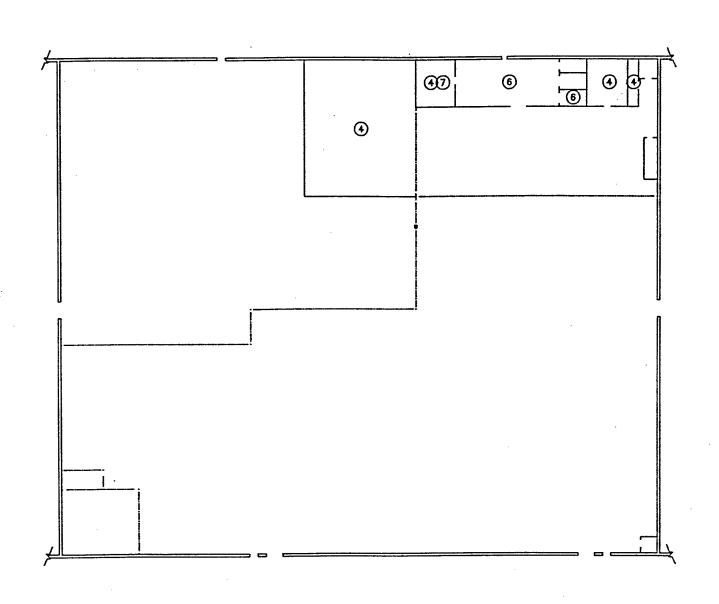
(MA) MASTIC

+ DENOTES POSITIVE RESULTS

ARENT USATHAMA	LOCATION Camero	n Station	i, Ale	xandria	i, Virg	ınıa
Woodward-Clyde	TITLE			9 - BA	ONS	
Federal Services	PROJECT NO.	DRAWN BY:	LAL	DATE	5-21-91	DWG. NO. 9/2-SI
Ledelai Selvices	3001-210	CHECKED BY:	F.B.G.	SCALE	N.T.S.	9/2-3F

3 3 LEGEND 3 2' x 4' FISSURED TILE Cameron Station, Alexandria, Virginia CLIENT USATHAMA LOCATION BUILDING 9 - BAY 2 CEILING TYPE LOCATIONS

Woodward-Clyde Federal Services 5-21-91 DWG. HO. 9/2-CT LAL DATE: F.B.C. SCALE



- 4 9 x 9 GREEN
- 6 12" x 12" WHITE
- 7) 12° x 12° BLACK

CLIENT	USA	HT	A)	Αλ
--------	-----	----	----	----

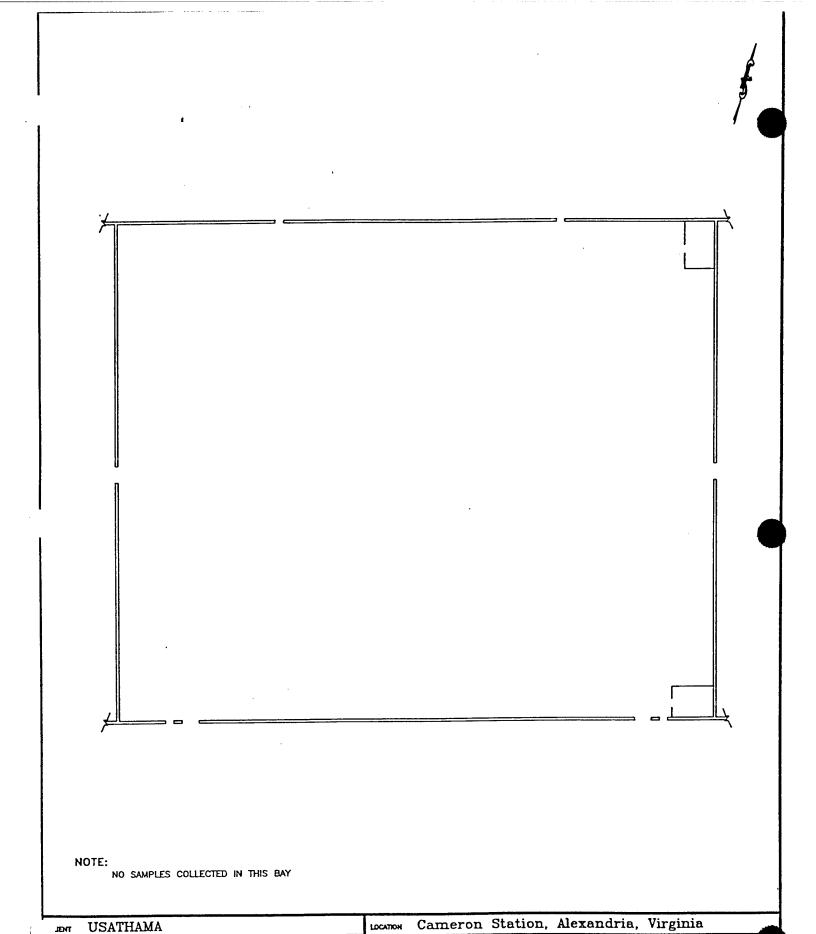
Woodward-Clyde Federal Services



LOCATION Cameron Station, Alexandria, Virginia

BUILDING 9 - BAY 2 FLOOR TILE LOCATIONS

FLOOR TILE LOCATIONS									
PROJECT NO.	DRAWN BY:	ĽL	DATE:	5-21-91	DWG. NO. Q /2-FT				
3001210	CHECKED BY:	F.B.G.	SCALE	P.T.S.	9/2-11				



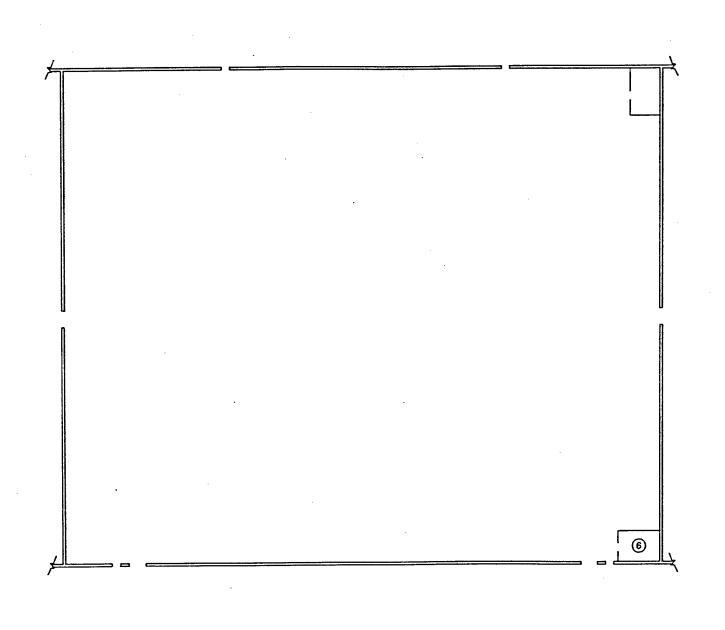
MLE

PROJECT NO. DRAWN ... 3001-210 CHECKED BY:

Woodward-Clyde Federal Services BUILDING 9 - BAY 3

SAMPLE LOCATIONS

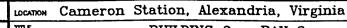
LAL DATE: F.B.G. SCALE: 3-21-91 DWG. NO. 9/3-SL



6 12" x 12" WHITE

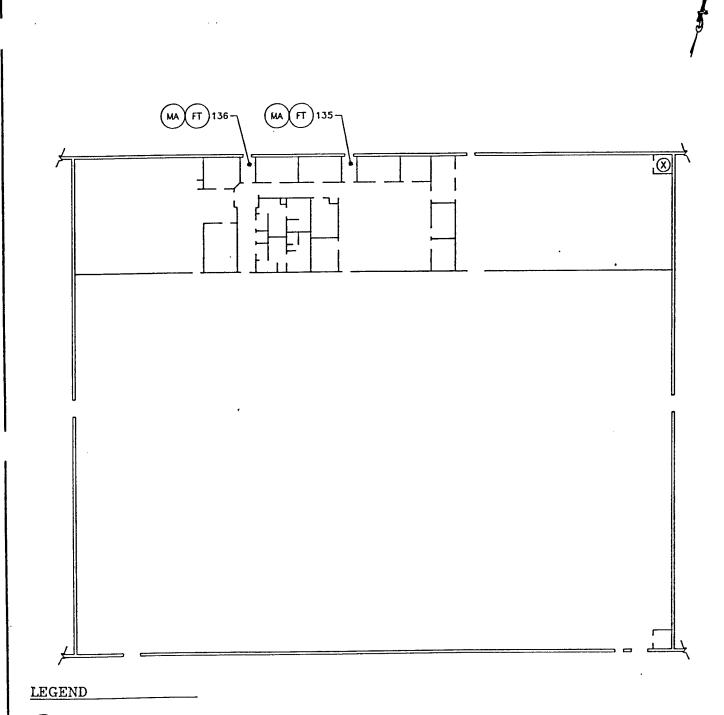
CLEMT USATHAMA

Woodward-Clyde Federal Services



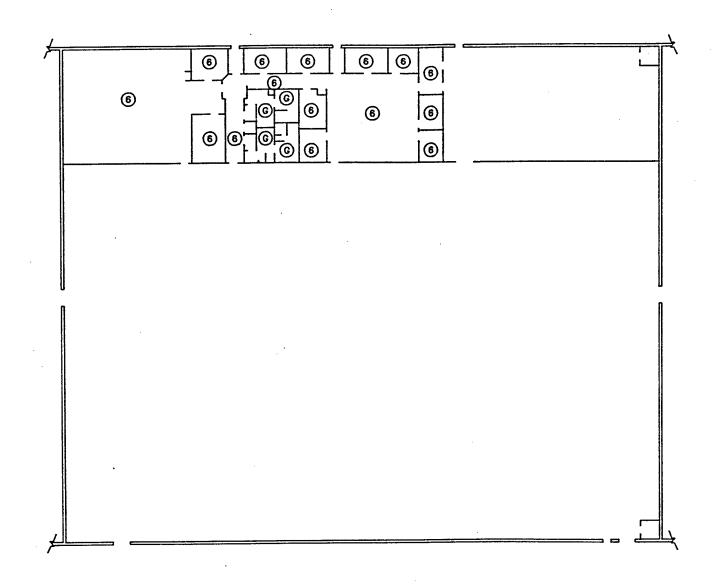
BUILDING 9 - BAY 3 FLOOR TILE LOCATIONS

PROJECT NO. DRAWN BY: LAL DATE: 5-21-91 DWG. NO. 9/3-FT



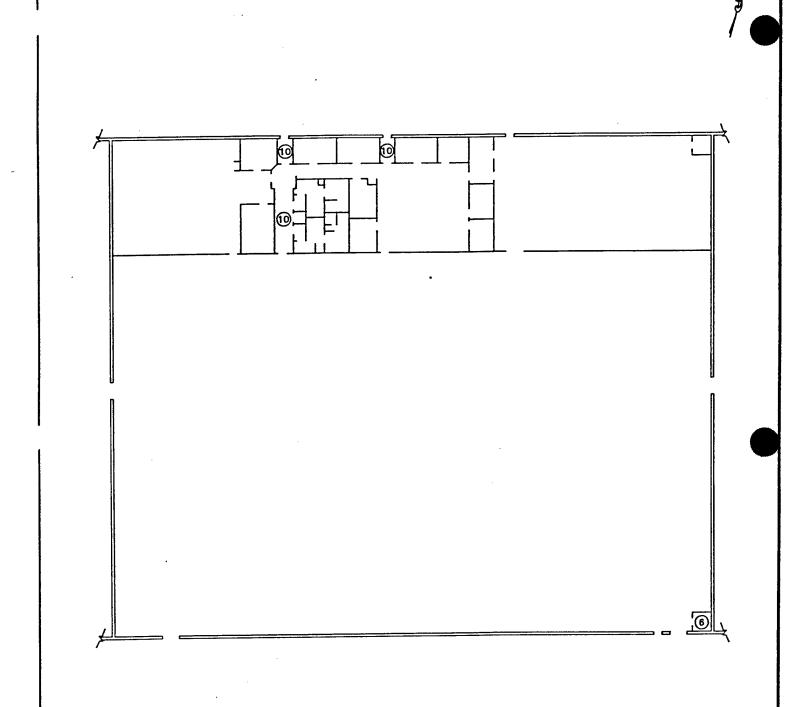
- FT FLOOR TILE
- MA MASTIC
- X AREA NOT ACCESSED
- + DENOTES POSITIVE RESULTS

LOCATION Camero	n Station	n, Alexano	dria, Virg	ginia
TITLE				
<u> </u>	SAN	APLE LOCA	TIONS	
PROJECT NO.	DRAWN EYS	LAL DATE	5-21-91	DWG. NO. 0 /4 ST
3001-210	CHECKED BY:	F.B.C. SCALE	N.T.S.	3/4-31
	PROJECT NO.	TITLE BUIL SAN PROJECT NO. DRAWN BY	BUILDING 9 - SAMPLE LOCA PROJECT NO. DRAWN BY LAL DATE	SAMPLE LOCATIONS PROJECT NO. DRAWN BY LAL DATE: 5-21-91



- 6 2' x 4' FIBERGLASS TILE
- © GYPSUM BOARD

CLIENT USATHAMA	 LOCATION	Camero	n Static	on, Ai	exandi	na, virg	ınıa	
Woodward-Clyde	TILE				-	BAY 4 CATIONS		
Federal Services	PROJECT N	a 3001-210	DRAWN BY: CHECKED BY:	LAL. F.R.G.	DATE: SCALE:	5-21-91 N.T.S.	DWG, NO.	9/4-CT



CLIENT USATHAMA

- 6 12" x 12" WHITE
- (10) 12" x 12" WHITE MARBLED

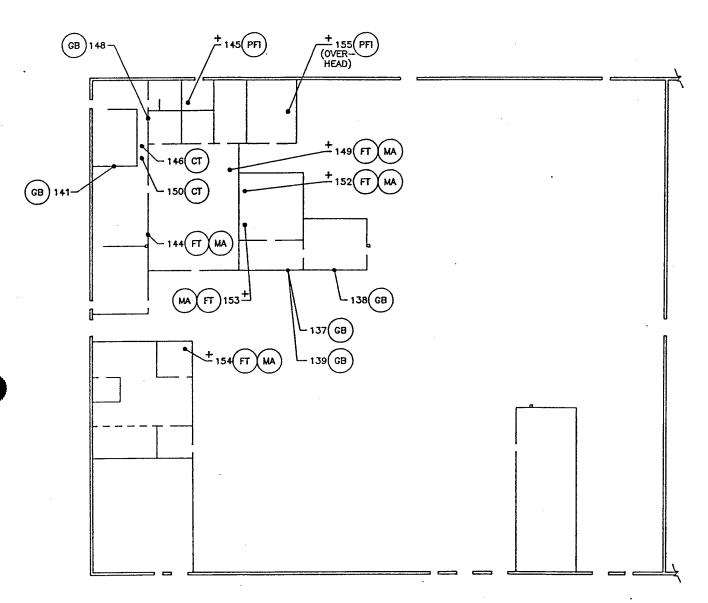
Woodward-Clyde Federal Services



LOCATION	Cameron	Station,	Ale	xan	ıdı	ria,	Vir	ginia
IIILE		RIIII.DI	NG	9 -	_	BAY	4	

BUILDING 9 - BAY 4
FLOOR TILE LOCATIONS

PROJECT NO. DRAWN BY: LAL DATE: 5-21-91 DWG. NO. 9/4-FT

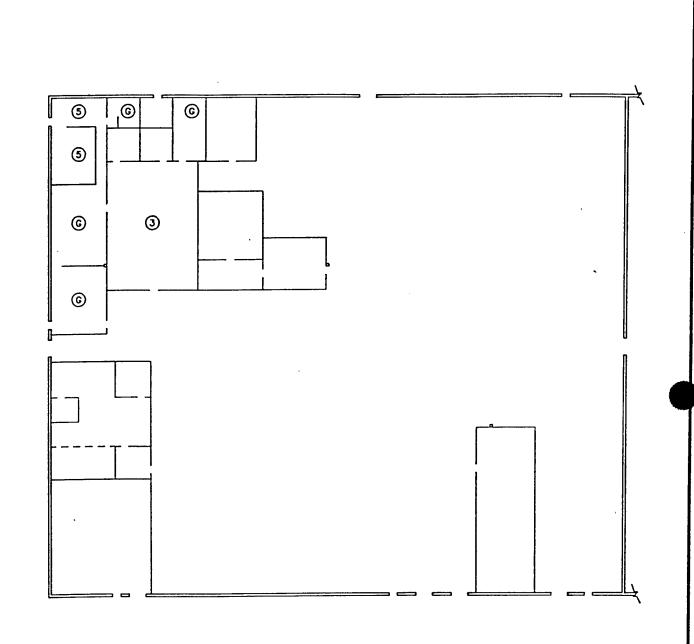


- (PI) PIPE INSULATION
- GB GYPSUM BOARD
- (PFI) PIPE FITTING INSULATION
- (CT) CEILING TILE
- FT FLOOR TILE

+ DENOTES POSITIVE RESULTS

(MA) MASTIC

USATHAMA	LOCATION Cameron Station, Alexandria	, Virginia
Woodward-Clyde	BUILDING 9 - BASAMPLE LOCATION	ONS
Federal Services	PROJECT NO. DRAWN BY: LAL DATE:	5-21-91 DWG. NO. 9/5-SL
Ledeldi Selvices	3001-210 CHECKED ETC F.B.C. SCALE	N.T.S. 9/0-3L



- 3 2' x 4' FISSURED TILE
- (5) 12" x 12" SMALL HOLES TILE
- (G) GYPSUM BOARD

USATHAMA

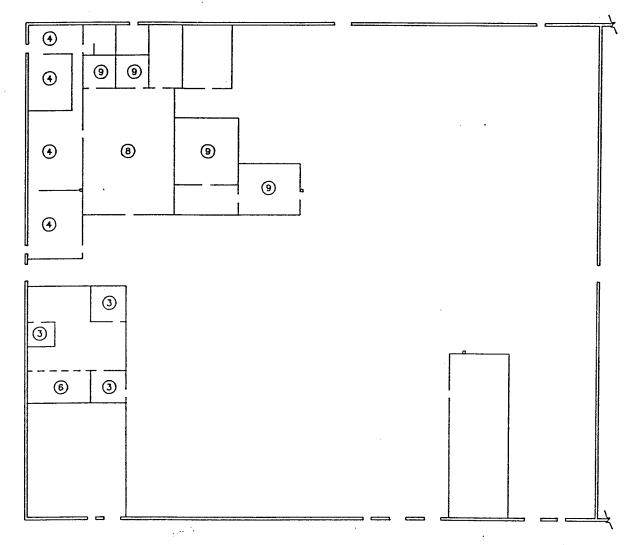
Woodward-Clyde Federal Services



LOCATION	Cameron	Station,	Alexandria,	Virginia

TITLE BUILDING 9 - BAY 5 CEILING TYPE LOCATIONS

PROJECT NO. 5-21-91 DWG. NO. 9/5-CT DRAWN BY: LAL DATE 3001-210 CHECKED BY:



- 3 9" x 9" BROWN
- 4 9" x 9" GREEN
- 6 12" x 12" WHITE
- 8 12" x 12" GREEN
- 9 12" x 12" BROWN

USATHAMA	LOCATION	Cameron	Station,	Αle	exandria	Virg	inia	
Woodward-Clyde	TITLE		FLOOR	TIL	9 - BA E LOCAT	IONS		
Federal Services	PROJECT	···	0,000,000	.B.G.	DATE: SCALE:	5-21-91 N.T.S.	DWG. NO.	9/5-FT

APPENDIX 9-D . WALKTHROUGH SURVEY DATA SHEETS

ameron Station			Walkthrough Survey 1 Sheet 1 of
molthpe	Homa: E	EXTERIOR	Brown /Gar. da
:xterior Siding \fasonry □ Steel/Al	Steel/Aluminum (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	Asbestos Cement Shingle	Asphalt Shingle □
Sample Y N 3/0	Condition G F P	Quantity > 190, 000	
	posmon 18cm		
Shingle (asphalt/fiberglass)	Tar & Felt 区 Steel Panel 🗆	Fiberglass Panel	Other
Sample Y N	Condition G F P	Quantity SF	
Exterior Mechanical Systems			
	<u>Sample</u> <u>Condition</u>	Quantity	Location
Vent pipe [2] Chimney [2] Louvers [2]	Y N 746 G F P G F		
A/C Units 🗹 Other 🗗	Y N no G F P G F P		
ארן יי רר היי היי היי היי היי היי היי היי היי ה		STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	ıns 🗆 Steel Column 🗖	Concrete Column E
Sample Y N	Condition G F P	Quantity SF	
Sample Y N	Condition G F P	Quantity SF	
Firewalls - Steel	Masonry 匠	Firedoor 🗗	
Sample Y (Condition G F P	Antity	

Sheet

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

uilding #9

ameron Station

	QI #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler	Alk						
						,	
Breeching	NA						
Fumace	XIX						
Tanks/Vessels	NA				•		
Elec./Telephone							
							•
Other							
NAT GUS. HENT	N/	No	•				

*Type of Insulation: 1. Premold 2. Blanket 3. Aircell

Trowelled-on
 Mud
 Other

HVAC

meron Station

X X

ilding

Diam. of Pipe 4 4 1 60,20 7: Quantity SF/LF or # Fittings L.Hing. 7 30 Amount 1~ 2/2 1 1 Condition G F P ; tal 7 B Sample Y N 3 400 260 ; 240 arrugated Type of Insulation* Houglass Liberglass saper 1240 ζ. • Insulated Y N 203 > 70s 7 ; : DHW, OFFICE ANSIIS
BUYS 1,6,4,5 WW, arred Mens Day 1 - oranland Day , Dore 8 Orlice press East now Location Fittings Other Duct Pipe

ype of Insulation:
1. Premold
2. Blanket

5. Trowelled-on6. Mud7. Other

2. Blanket3. Aircell4. Fiberglass

	· ·													 1	
11.15°5	Quantity	700 SF	80 31E	420 SM	5100 SF	1500 sr	2400 35	100 31	15.0039	1300 56		·			
Inspector/Date: Gungala / Signands S	Condition G F P	fair	Lair	ما يوم	3000	£.~	god	good .	boop	garab.					
Inspector/Da	Sample Y N	468) J	777	428	7,5	\$ 25,	S 23 5	46.5	\ \frac{1}{2})	·			
	Location	3ce 2/02	cape ass	5ec 2/m	5cc 2/4n	Ser 3/en		See yan		Ar 0/45					
	Color/Pattern	Back	COM	brown	Coarb	ta'	1115ite.	Black	oxe	Sumary					
Building MS	Material*	Jun 116 1) 540"		"	A TANA	1/10 1/10 at 5 0.00.	11. 11. 12 12 12	Any tile 87 12 x12"	17.7. 4.4 - 1.7. 12. 12.		1100 1110 1 WAIT				

Walls Gypboard/Drywall Plaster Other

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services

APPENDIX 9-E LABORATORY CERTIFICATE OF ANALYSIS

greater and beauty to the first process to the control of the cont



Woodward-Clyde Federal Services 1 Church St. Suite 404

Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

: Cameron Station Job Number: 3001 6 Job Site Bldg #

Person Submitting: DAVID BARNES : 01/24/91 Date Analyzed Date Sampled

MICROSCOPY LIGHT POLARIZED **O**E SUMMARY

COMMENT														
ANALYST ID**	8 2	2	7	S B	SS.	A B	2	93	¥3	S	2	S	SA.	SE
PARTICULATE	95-99	85-95	95-99	40-50	35-45	45-55	96-06	9599	60-64	40-50	65-75	86-06	89-93	15-20
CAL */	<u> </u>	1	1		!	1	1	!	!		1	1	01-05	!
S MATERI ORGANIC FIBERS	01-05	01-05	01-05	25-30	30-35	30-35	01-02	01-05	01-05	30-35	15-20	01-05	01-02	80-85
OTHER FIBROUS MATERLI MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	1	1	!	25-30	25-30	15-20	!	!	02-10	20-25	10-15	1	1	!
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	1	1	-	1	1 1 1	1	!	1	1	1	1	1	!	1
INTER OLITE BYLLITE	1			1	1	1	1	1 1	1 1	1	-	į	1	1 1 1 1
IREMO- ACTIN- ANTHOP- LITE OLITE HYLLITE		1	1	1	1	1		1	1		!	!	1	1 1 1
OS & TREMO- LITE	1	1	1	1	1	1	1	!	1	1		!	1	!
/ ASBESTO CHRYSO- CROCIDO- IILE AMOSITE LITE		1			1	!	1	1	1	-		1	1	1
AMOSITE	!		1 1	1	1	1			1	1	1	1	1	
/ CHRYSO- TILE A	₽	05-10	₹	1	!	1	01-05	₽	25-30	1		01-05	01-05	
ASBESTOS PRESENT*	Α	ρι	A	z	z	×	Α	Δı,	Д	z	z	Δ,	Д	×
SAMPLE	109	110	111	112	113	114	115	116	117	118	119	120	121	122

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

- ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Date

Job Site : Cameron Station

6

Bldg #

Job Number: 3001

Date Sampled : 01/24/91
Date Analyzed : 02/05/91

Date Analyzed : 02/05/91
Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED 日0 SUMMARY

COMMENT														
ANALYST ID**	8 2	2	2	2	2	2	2	SS	S.	æ	2	æ	2	2
PARTICULATE	86-06	20-25	86-06	45-50	45-55	55-60	60-10	60-65	100	55-65	60-64	65-56	65-56	95-99
AL A/		!	1	1	-	1	!	1			!	1	!	1
OTHER FIBROUS MATERIAL & MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	01-05	75-80	01-05	1	30-35		30-35	!	7	30-35	01-02	01-02	01-05	01-05
R FIBROUS FIBROUS GLASS	 	1	1	20-25	15-20	1	01-05	1	1	05-10	05-10			
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	1	!	!	20-25	!	1	1	1	1	1	1	1		
EMO- ACTIN- ANTHOP-	;		:	1	:		!	1	1		!		;	!
- ASBESTOS &		1	1	1		!	1	1	1	1		1	1	
# P4 E7		!		1		}	1	}	1	1			1	1
- ASBEST CROCIDO- LITE	1			1	1	1	;		!	;			i	
/ ASBESTOS CHRYSO- CROCIDO- TR TILE AMOSITE LITE LI	1		1			1	1		!			;		
CHRYSO-	01-05		01-05	05-10		40-45		35-40	₽	1	25-30	1		
ASBESTOS PRESENT*	ρι	z	. ф	. α	z	. Δ	. Z	; ρ.	Α.	z	, ρ,	z	z	z
SAMPLE	123	124	125	126	127		129	130	131	132	133	134	135	136

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and screpted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter Laboratoris this report is submitting them and, unless collected by personnel of these matter authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.



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H

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 9
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 01/24/91 Date Analyzed : 02/05/91 Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED **Н**О SUMMARY

	COMMENT					
	ANALYST ID**	УВ	2	2	S.	2
	PARTICULATE	86-06	86-06	90-98	90-06	55-64
AL/	OTHER	† • •				}
S MATERI	MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	01-05	01-05	01-05	01-05	01-05
R FIBROU	FIBROUS	ļ		•	!	1
/ OTHER PIBROUS MATERIAL &/	MINERAL	1	1	1	1	35-40
/ ASBESTOS &	Anthop- hyllite	1	!	!	:	1
	ACTIN- OLITE		1	1	!	1
* so	TREMO-		1		1	1
- ASBEST	CROCIDO- TREMO- ACTIN- ANTHOP- LITE LITE OLITE HYLLITE	1	1		1	1
1	MOSITE	ļ	1	1	1	01-05
//	CHRYSO- TILE AMOSITE	01-05	01-05	01-05	01-05	;
	ASBESTOS CHRYSO- PRESENT* TILE ?	ρ	e,	ρι	Α	Δ.
	SAMPLE	151	152	153	154	155

COMMENTS: * P = ASBESTOS PRESENT ** ANALYST ID CODE (SEE SIGNATURE)
N = ASBESTOS NOT OBSERVED

LAST PAGE OF 4 PAGE

Samples Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation

Lisa Boykin (AB)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.



May 15, 1991

Woodward-Clyde Federal Services One Chruch Street, Suite 404 Rockville, MD 20850

RE:

TEM Bulk Analysis Cameron Station

JOB SITE:

Bldg. 9

JOB LOCATION:
PROJECT NUMBER:

Cameron Station

3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.	ORGANIC MATERIAL	DOLOMITE/ CALCITE	NON FIBROUS MINERALS
149	3 - 4%	20%	50%	26 - 27%

Woodward-Clyde Federal Services May 15, 1991 Page 3 of 3

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely, AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos Electron Microscopist

Robert M. Powell Laboratory Director

LHB/kec

APPENDIX 9-F SAMPLE CHAIN-OF-CUSTODY FORMS

3001 BEI WCFS Project Installation (2): CM Sample Program (3): Elaboratory (2): PC

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 2 1/2/13

Woodward

c/o Charles ...mett
EACA, RPMO, Bldg. 17
CACA, RPMO, Bldg. 17
Alexandria, VA
(703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

nci	roof Containers	Ичтре						·		Total Number of Sontbanks			
(301) 309-0800	(ae) TPHG									kunce			
(301)	PCB Wipe									3		1	
	0001									12			
	JeodeA		7	7	7	7	7	7	7	17			
	പാர									X			
	TIN									Signature: 6	ture:		
	CT									Signa	Signoture:		
	+0 S									_	1		
	(яі) энчт									12 05			
	СЛИ	KU04 LU02								77			
	TAL Metals]]]	Time:		
	NON-TCL Pest								!	Time:	별		
	(3e/s6) #83d/430									ایا	lyde		
	(zm/zg) z824/920	90M1								Pees (ab, hr.	Woodward-Clyde		
	ZAOC	90117									мроо		
	200	SOMU LMOS				-				1 2	1 1		
	TEST NAME	UM05 CODE								Accepted by:	Accepted by: Date:	Comments:	
	Flag Code (1) C Code (1)	Sample								Accept Date:	Accep Date:	Com	
	Depth Ft. (5)	Sample						-					
						-				3	\		
	Site Type (4)									Seen	3		
	File Type (3)									Par.	lau		
5	WCFS Field Sample ID (8)		501	0//	111	£11	1/3	411	115	Signature: Merec	Signature:	•	
BLDG 9	Site 10 (10)		456 109	458110	458111	458 11.2	455113	45,31.14	ASB 115	Ime: 1205 S	s (200) :suil		
11 124 41 WM DD YY	Time of Sampling (Military	(4)								Woodward-Clyd	Rese Lab, Anc.	, 1	
Sample Date:	WCFS Field Sampler Initials	(3)	188	8	639	36/	188	1.66	FB6	Relinquished by:	Relinquished by:	Comments:	

Woodward-Clyde ederal Services

3001

WCFS Project Installation (2): CM Sample Program (3): Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: UM13

Alexandria, VA (703) 274-6548 Field Office:

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Number of Containers Total Number (26) 2H9T PCB Wipe 0001 **Vabeat** Signature: TCL Signoture: ШN מר **+**0S 6) !\ (RI) 2H9T KW4 LW2 NL) TAL Metals Time: NON-TCL Pest Accepted by: Woodward-Clyde (26/26) #B24/400 Pere Lob, Fr. 90MU (sm/sg) s804/900 17406 17406 17402 17402 07402 SAOC Accepted by: VOC Comments: TEST NAME Date Sample Techniques (1)
Sample Rag Code (1)
Sample CC Code (1) Date: Signoture, Merciel M. Barne Site (4) 1, ₹ € (3) € (3) € (3) € (4) BLDG 9 WCFS Field Sample ID (8) 03:1 B 117 611 100 110 1.45/ (53.5 158130 ASS 133 Time: 16305 ASB118 ASB116 A53119 A58117 153131 30 Site Sample Date: 0/15491 Relinquished by: Woodward-Clyde Time of Sampling (Military Clock) (4) Perso Lob, three Date: 1/25/91 Relinquished by: WCFS Field Sampler Initials (3) 509 738 FB6 699 Comments: 136 636 186 Pate

Woodward-Clyd ederal Services

3001

BEI

WCFS Projectinstallation (2): CM Sample Program (3): Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: WM &

Field Office:

Woodwo sderal Services c/o Charles c....mett EACA, RFNO, Bidg. 17 Cameron Steion Alexandria, VA (703) 274-6548

Admin. Office:

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: 212 1/3 Initials

BLDG, 9

Sample Date: 02 124 91

Field Office:

Woodward-C, .ederal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Cameron Station Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC WCFS Project

Woodward-Clyd ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 12 17 18 Initials

Field Office:

Woodward*** rederal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Comeron Station Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Sample Date: KH 91

BLDG 9

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Woodward-Clyde ederal Services

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WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Field Office:

Woodward-1 ederal Services c/o Charles ...ummett EACA, RPHU, Bldg. 17 Cameron Stotion Aexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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Comments:							Comments:			
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White: Receipt Gold: Relow: WCFS Chemist Pink: Return to WC Mediter sample receipt Gold: Return to WCFS with residual samples

WCFS Projec 300 Instellation (2): Ch Sample Program (3): BEI Laboratory (2): PC

Woodward-Clyd ederal Services

CHAIN OF CUSTODY RECOMU - USATHAMA SAMPLES

COC By: DM 1/3

Field Office:

Woodwal ederal Services c/o Chartes amet EACA, RRMO, Bldg. 17 Cameron Stution Alexandra, VA (703) 274-6548

Woodward—Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309—0800

Admin. Office:

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BUILDING 10

10.1 DESCRIPTION

Building 10, a two-story masonry structure with an attached one-story office/locker room, houses metal working and carpentry shops. It has a flat tar, felt and gravel roof typical of buildings at Cameron Station. The concrete floor is tile-covered in non-shop areas. Ceiling materials are fiberglass tile and fiberboard. Steam heat is supplied by Building 21, the Boiler House, through underground steam pipes.

10.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 10-A through 10-F. A summary of this data is presented below.

10.2.1 Suspect Friable ACM

Two homogeneous areas of suspect friable ACM were identified and six bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in one material:

Corrugated paper pipe insulation

Assessment of this material indicates a damage factor of 10 and an exposure factor of 14. According to the GAHA Index, this material ranks as Priority C.

10.2.2 Suspect Nonfriable ACM

Three homogeneous areas of suspect nonfriable ACM were identified and eight bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in one material:

• 9" x 9" black floor tile and mastic

No assessment of this nonfriable material was performed. However, as ACM this material should be included in an O&M Program.

10.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

10.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

10.4 AREAS NOT ACCESSED

All areas in Building 10 were accessed.

10.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
10			24 LF PI

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

10.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 10-A	ACM Survey Results
Appendix 10-B	Assessments/Recommendations for Friable ACM
Appendix 10-C	Building Drawings
Appendix 10-D	Walkthrough Survey Data Sheets
Appendix 10-E	Laboratory Certificate of Analysis
Appendix 10-F	Sample Chain-of-Custody Forms

APPENDIX 10-A ACM SURVEY RESULTS

ACM Survey Results for Building 10

	Material	Material Description				Quantity	ıtity			
Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
-	Misc.	Tar and felt	Roof	Non	Bood	0099	SF	Assume ACM	Assume ACM	
8	TSI	Corrugated paper pipe insulation	Locker room & shops	Low	Fair ri	24	5	160 173 174	<1% Chrysotile 5-10% Chrysotile 5-10% Chrysotile	3" pipe diameter with insulation
ო	īSī	Pipe fitting insulation	Shops	Low	poog	25	# of fittings	162 163 170	None detected None detected	
4	Misc.	Floor tile & mastic	Office & locker room	Noo	poog	550	R F	159 172	<1% Chrysotile	12" x 12" brown floor tile
ហ	Misc.	Floor tile & mastic	Lounge	Non	poog	300	R R	164	1-5% Chrysotile 1-5% Chrysotile	9" x 9" black floor tile
ω	Surfacing	Gypsum board	Walls in lounge	с 0 2	O 0 0 0	006	п	165 169 175 176	None detected None detected None detected None detected	Sample 176 is a QC for sample 169.

Woodward-Clyde Federal Services July 2, 1991

APPENDIX 10-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/k ammendation for Building 8

	GAHA Recommended Management Corrective Action Index	Planned Action - Initiate an O&M Program. Schedule removal as part of the normal repair and maintenance cycle of the facility, thereby minimizing cost and disturbance.
		O
	Exposure Factor	-
	Damage/Risk Factor	0
Material Description	Type (e.g. pipe fitting insulation)	Corrugated paper pipe insulation
Materia	Category (surfacing TSI or misc.)	TSI
	Homogen- eous Sample Area	2
	Functional Space	10-1

Friable Asbestos , ssment Checklist Cumeron Station Building 125/91 Homogeneous Sample Area #(s) Functional Space 10-1 Anterior Common	Part I: Damuge/Risk • Visible evidence of physical damage: 5 High: 4 Moderate: (2) Low; 1 Minimal; 0 None • Water damage: 3 Yes; 0 No • Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) • Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) • Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) • Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) • Tyree of material (If area contains several friable materials, score the one with the greatest quantity). • Potential for Contact based on material proximity to area occupants: A. < 10 ft: 8 High; 5 Medium; 2 Low B. ≥ 10 ft: 5 High: 3 Medium; 0 Low Chabestos content: 0 Low Chabestos content: 0 Low Chabestos content: 0 Low Chabestos content: 0 Low Danage/Risk Total Danage/Risk Total Danage/Risk Total	
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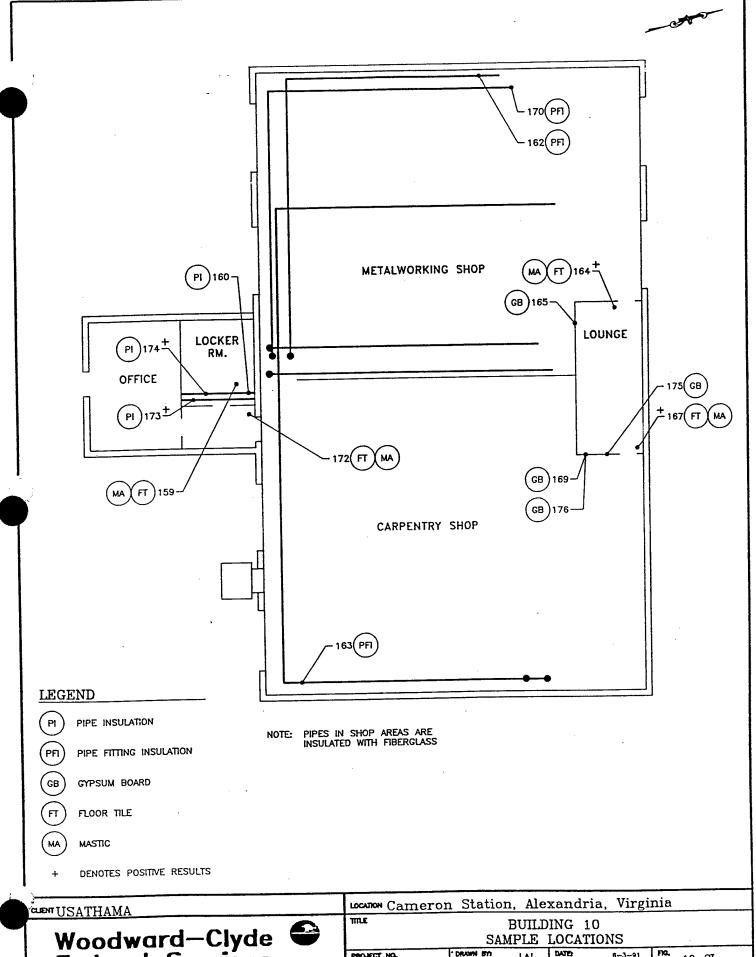
Woodward-Clyde Federal Servic

November 19, 19

IsuI (
Homogeneous Sample Area #(s)
• Friability: 6 High; 3 Moderate; (1) Low
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $(1) 10 \le \text{ft}^2 < 100$; $2 100 \le \text{ft}^2 < 1000$; $3 \ge 1000 \text{ ft}_2$
st; score
4 Rough; 3 Pitted; (2/ Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply, maximum of properties of the above solution of the above solution supply; 2 Interior supply; 2 Interior supply; 2 Interior supply; 2 Interior supply; 2 Interior supply; 3 Interior supply; 5 Interior supply; 6 Interior supply; 7 Int
• Activity (Refers to forces such as vibration, water or steam acting on material.)
5 High (constant vibration); (2) Medium (occasional vibration); 0 Low
• Floor: 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$1 \le 25\%$; $2 \le 5 \le 50$; $3 \le 0 \le \% \le 75$; $4 \nearrow 75 \le \% \le 100$
• Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$; $5 > 1001$ or medical/youth centers/residential
Exposure Total // Woodward-Clyde Federal Service

November 19, 199

APPENDIX 10-C BUILDING DRAWINGS



Woodward-Clyde Federal Services PROJECT NO. DRAWN BY DATE 10-SL CHECKED BY

APPENDIX 10-D WALKTHROUGH SURVEY DATA SHEETS

ameron Station		,		Walkthrough Surv
wilding #10 Fac E	Engineens		EXTERIOR	06/14/11
xterior Siding	•			
.fasonry 国 Steel/A	Steel/Aluminum	□ poo _M	Asbestos Cement Shingle	Asphalt Shingle
)ther	Sofi	Soffit		
ample Y N 720	Condition	G F P	Quantity 6607 SF	
Soof		source Acm		
Shingle (asphalt/fiberglass)	Tar & Felt 区	☐ Steel Panel □	Fiberglass Panel	Other
Sample Y (N) 200	Condition	G F P	Quantity SF	
Exterior Mechanical Systems				
	Sample	Condition	Quantity	Location
Vent pipe []	∀	G F P		
∵. Cliimney □	X	G F P		
Louvers E	V &	G F P		
ts	γ (§	G F P		
Other	z >	G F P		
			STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	Wood Columns	s 🗆 Steel Column 🖫	Concrete Column
Sample Y CA	Condition	G F P	Quantity SF	
Sample Y (N)	Condition	G.	Quantity SF	
Firewalls - Steel	Masonry 日	\	Firedoor	
Sample Y (N)	Condition	G F P	Quantity	

2 of 4

umeron Station

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

uilding #/O

\i	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
					·		
		n.			m		
			,				
1							
1							
1							
						•	

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell

Trowelled-on
 Mud
 Other

Sheet

Walkthrough Surve

HVAC

*

ameron Station

٠				,				
	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe g
Duct								
								•
Dine		377	Contra Marie	3	fair	24	27	3.5"
	Commence account		Fi how laws	70	9000	~ 600	77	5.50
	Show There	2		Ü				
Fillings	Show Allen	33	mudded	165	good	ol P	FH	
0					·			
Other								
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*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

5. Trowelled-on6. Mud7. Other

4 of 4

INTERIOR - CEILING/WALLS/FLOORS/MISC.

			,		,	 	 	 			
	Quantity						Js 206				
ie:	Condition G F P						0				
Inspector/Date:	Sample Y N	116	1/2				n				
	Location						Sunse				
	Color/Pattern						gregorian board				
Suilding /ð	Material*	CT 1 4X 8 theren handboard	Hous and XXI IT	flaylan			Will				

Material
Seiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services



Walkthrough Survey

INTERIOR - CEILING/WALLS/FLOORS/MISC.

uilding #10

ameron Station

Quantity	~ 550 sF	1 300 sF								
Condition G F P	6000	Pood			•					
Sample Y N	yes	400								
Location	SEE FLOOR PLANS									
Color/Pattern	bown	black								
Material*	#1 \Q''\ X1\Q''									

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

APPENDIX 10-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001 9 Bldg #

Date Analyzed Date Sampled

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARI ZED 日〇 SUMMARY

	COMMENT														
ANALYST	ID**	YB	2	2	AB.	2	2	2	2	2	E¥.	A B	æ	¥3	¥9
	PARTICULATE	66-36	20-25	40-45	20-60	86-06	75-80	86-06	75-80	60-65	85-90	10-20	15-25	80-85	85-90
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S MATERI ORGANIC	FIBERS	01-05	75-80	7	05-10	01-05	20-25	01-05	20-25	₽	10-15	75-80	70-75	15-20	10-15
OTHER FIBROUS MATERI: MINERAL FIBROUS ORGANIC	GLASS	1	1	1	!	!	;		1	35-40		1	1	! ! !	7
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC	WOOL	1		55-60	35-40		1	1	1	1	1	1	1		1
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- ASBESTOS &	LITE	1	1	1		1	1	1	!	1	1	1	1	1	1
	AMOSITE	1	1	1	1		1) ; ;	1		1		1		;
//	TILE	₹	₽	1	1	01-05	1	01-05	1	;	♥	05-10	05-10	1	!
	ASBESTOS PRESENT*	Д	. Δ.	×	z	ρ,	×	Α	×	×	p4	А	p.	z	×
!	SAMPLE	159	160	162	163	164	165	167	169	170	172	173	174	175	176

* P = ASBESTOS PRESENT COMMENTS:

(SEE SIGNATURE) CODE ** ANALYST ID

1 PAGE(S)

LAST PAGE OF

- ASBESTOS NOT OBSERVED

the Determination of Asbestos in Bylk Insulation Interim Method for EPA analyzed by Sample(s)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

APPENDIX 10-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyd 'ederal Services

WCFS Project 140, 3001 Instellation (2); CM Sample Program (3): BE1 Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 2 m 3

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Woodward-Clyde ederal Services

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Field Office:

Woodward- . . & Federal Services c/o Charles Brummett CAC, RRNU, Bldg. 17 Cameron Stution Alexandria, VA (703) 274-6548

Admin. Office:

Woodward—Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309—0800

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White: Race Lab Yellow: WCFS Chemist Pink: Return to WCF and ter sample receipt Gold: Return to WCFS with residual samples

Comments: Date:

Comments:

BUILDING 11

11.1 DESCRIPTION

Building 11 is a small (approximately 60 square feet) masonry structure with a flat metal panel roof. It houses the installation's sewage pumping station.

11.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable, in Building 11. No bulk samples were collected, and no materials were assumed to be ACM.

11.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

11.4 AREAS NOT ACCESSED

All areas in Building 11 were accessed.

11.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

11.6 REPORT APPENDICES

The remainder of this building report consists of the following one appendix:

Appendix 11-D Walkthrough Survey Data Sheets.

Other appendices are not applicable to this building report.

APPENDIX 11-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Stati				Walkthrough Surve
	Sewarze Permonny Station	EXTERIOR	OR	Inspector Date Eurone Guanha
Exterior Siding				05/8///
	Steel/Aluminum	Wood	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	Soffit	Soffit word		
Sample Y (N)	Condition	F P	Quantity	
Roof Chinale (combalt/fiberaless)	T at & Relt	Steel Panel C	Fiberolass Panel	Other \square
Sample (aspirate) Sample Y (N)	Condition G	Ę.	QuantitySF	
Mech	Sample	Condition	Quantity	Location
Vent pipe	z	A E		
Chimney	X X	GFP		
Louvers	N X	G F P		
A/C Units	N Y	G F P		
Other	Z Z	GFP		
		SI	STRUCTURAL	
Wood Joists/Beams □	Steel Joists/Beams	Wood Columns	□ Steel Column □	Concrete Column
Sample Y N	Condition G	ዋ	Quantity	
Sample Y N	Condition G	я Р	Quantity SF	
Firewalls - Steel	Masonry		Firedoor	
Sample Y N	Condition G	ፑ	Quantity	
				Woodward-Clyde Federal Services

ECTRICAL/TELEPHONE

BOILER, FURNANCE,

+ 10 7

Building //			N/A		Inspector/Date:		
	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Fumace							
Tanks/Vessels							
Elec./Telephone							
Other							
*Type of Insulation:							

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

5. Trowelled-on6. Mud7. Other

Woodward-Clyde Federal Services

November 19, 199



Diam. of Pipe Quantity SF/LF or # Fittings Amount Inspector/Date: Condition G F P Sample Y N Type of Insulation* Insulated Y N Location *Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass Fittings Building Other Duct Pipe

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

4 of 4

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Cameron Station

١.						 	 	 			 -	 r	·	 1
	Quantity				-									
te:	Condition G F P													
Inspector/Date:	Sample Y N	N		N										
	Location													
	Color/Pattern													
Building	Material*	Cuncuit Clar	"	moins inch										

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Floors 9x9 tile 12x12 tile Sheet

Walls Gypboard/Drywall Plaster Other

Woodward-Clyde Federal Services

D.VIICAN CAMSTAVASBESTOS.SUR

BUILDING 15

15.1 DESCRIPTION

Building 15 is a two-story "L" shaped masonry and concrete structure with a basement. Structural support is accomplished by cast-in-place columns and concrete decks. The flat roof consists of felt, tar and gravel. The stairwells have plaster walls; otherwise, the interior building materials are typical for Cameron Station structures and include gypsum board walls, carpet over floor tile over concrete, and ceiling tile. Heat is provided by Building 21, the Boiler House, through underground steam pipes. Heating is by radiators; there is no ductwork, i.e., no air handling units, throughout the building.

Building 15 houses the offices of the Post Commander, Post Police and the Institute of Heraldry.

15.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 15-A through 15-F. A summary of this data is presented below.

15.2.1 Suspect Friable ACM

Two homogeneous areas of suspect ACM were identified and seven bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following two materials:

- Corrugated paper pipe insulation
- Pipe fitting insulation

These materials were found in two separate functional spaces. For the basement reproduction work area, assessment of both materials indicates a damage factor of 16 and an exposure factor of 22. According to the GAHA Index, these materials rank as Priority B.

For the first floor corridor, assessment of the pipe insulation indicates a damage factor of 6 and an exposure factor of 19. According to the GAHA Index, the materials rank as Priority B.

15.2.2 Suspect Nonfriable ACM

Sixteen homogeneous areas of suspect nonfriable ACM were identified and forty-nine bulk samples, including two QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following five materials:

- FT 2 9" x 9" gray floor tile and mastic
- FT 3 9" x 9" green floor tile and mastic
- FT 4 9" x 9" brown floor tile and mastic
- FT 6
 9" x 9" black floor tile and mastic
- FT 8 12" x 12" woodgrain floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

15.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

15.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following materials, originally identified in the walkthrough survey as suspect ACM, were examined more closely and reclassified as nonsuspect:

- CT 1 2' x 4' fiberboard ceiling tile
- CT 5 2' x 4' fiberglass ceiling tile
- FT 1 12" x 12" rubber floor tile

No bulk samples of these materials were collected, and they were deleted as homogeneous sample areas from the final survey data.

15.4 AREAS NOT ACCESSED

All areas in Building 15 were accessed.

15.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
15		460 LF PI 32 MF	

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

15.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 15-A	ACM Survey Results
Appendix 15-B	Assessments/Recommendations for Friable ACM
Appendix 15-C	Building Drawings
Appendix 15-D	Walkthrough Survey Data Sheets
Appendix 15-E	Laboratory Certificate of Analysis
Appendix 15-F	Sample Chain-of-Custody Forms

APPENDIX 15-A ACM SURVEY RESULTS

ACM Survey Results for Building 15

	Material	Material Description				Quantity	tity			
Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
-	Misc.	Tar and felt	Roof	No n	рооб		SF	Assume	Assume ACM	
8	1SI	Corrugated paper pipe insulation	Basement and 1st floor See Drawings 15/B-PL	Mod High	Good- Poor	094	ш,	300 300 304	1-5% Chrysotile 5-10% Chrysotile 20-25% Chrysotile 1-5% Chrysotile	Sample 300 is a QC for Sample 299. 3" - 6" pipe diameter with insulation. Material is badly damaged in basement.
m	TSI	Pipe fitting insulation	Basement	High	Fair	32	# of fittings	301 302 306	1-5% Chrysotile 20-25% Amosite 5-10% Chrysotile 25-30% Amosite 1-5% Chrysotile	
4	Misc.	Ceiling tile	See Drawings 15/8-CT 15/1-CT	Non	Doo 5	3830	R	296 305	None detected None detected	CT 2 12" x 12" white w/small random holes
ഗ	Misc.	Ceiling tile	See Drawing 15/1-CT	Noo	poog	700	ñ.	333 334	None detected None detected	CT 3 12" x 12" white w/large random holes
v	Misc.	Ceiling tìle	See Drawings 15/8-CT 15/1-CT 15/2-CT	No.	рооб	7450	r.	309	None detected None detected	CT 4 2' x 4' white with fissures

Woodward-Clyde Federal Services July 2, 1991

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ACM Survey Results & Building 15 (continued)

		holes	S	sures				
	Comments	CT 6 12" x 12" white w/uniform holes	CT 7 2' x 4' white w/random.holes	CT 8 12" x 12" white w/large fissures	FT 2 9" x 9" grey floor tile	FT 3 9" x 9" green floor tile	FT 4 9" x 9" brown floor tile	FT 5 12" x 12" beige floor tile
	Sample Results (% and type of asbestos)	None detected None detected	None detected None detected	None detected None detected	1-5% Chrysotile 1-5% Chrysotile	1.5% Chrysotile 1.5% Chrysotile	1-5% Chrysotile <1% Chrysotile	None detected None detected
	Sample #	331	311	339 340	313	335 336	307 315	337 338
tity	Unit of Measure- ment (SF, LF or # of fittings)	SF	ı,	Ŗ.	r.	Ŗ.	r L	π.
Quantity	Estimated Amount	1350	776	1100	610	385	2200	576
	Condition (Good, Fair, or Poor)	Poog	Poog	Poo ₉	Poog	Good	Poog	poog
	Friability (Non, Low, Mod. or High)	Non	Non	Non	CON	Non	c 0 Z	Non
	Location (where material is found)	See Drawing 15/1-CT	See Drawing 15/8-CT	See Drawing 15/1-CT	See Drawings 15/B-FT 15/1-FT 15/2-FT	See Drawing 15/1-FT	See Drawings 15/B-FT 15/1-FT 15/2-FT	See Drawing 15/1-FT
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Ceiling tile	Ceiling tile	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic
Material I	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.	Misc.	Misc.
	Homogen- eous Sample Area	7	ω	თ	10	-		• 5

T							
	Comments	FT 6 9" x 9" black floor tile	FT 7 12" x 12" white floor tile	FT 8 12" x 12" woodgrain floor tile	Sample 347 is a QC for sample 344.		Sample 342 is a QC for sample 341,
	Sample Results (% and type of asbestos)	5-10% Chrysotile <1% Chrysotile	<1% Chrysotile	<1% Chrysotile 1-5% Chrysotile	None detected None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected None detected None detected	None detected None detected None detected None detected None detected None detected None detected None detected
	Sample #	308 314	316	322	298 3199 320 326 344 347 347	297 321 325 327 348 350 350	324 328 329 330 341 342 343
tity	Unit of Measure- ment (SF, LF or # of fittings)	R	R.	R.	r. Ω	и v	ι. L
Quantity	Estimated Amount	2000	650	288	6200	48500	7500
	Condition (Good, Fair, or Poor)	poog	Poog	Good	Poog	P000	P000
	Friability (Non, Low, Mod. or High)	Non	Non	No	c 0 2	C OZ	No
	Location (where material is found)	See Drawings 15/8-FT 15/2-FT	See Drawing 15/8-FT	See Drawing 15/8-FT	Hallways throughout building	Interior walls throughout building	Stairwells
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Fire code gypsum board	Regular gypsum board	Plaster
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Surfacing	Surfacing
	Homogen- eous Sample Area	14	<u>s</u>	9		8	61



APPENDIX 15-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Re ... nmendation for Building 15.

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.	
	GAHA Index		ω	•
	Exposure Factor	22	6.	•
	Damage/Risk Factor	16	φ	
Material Description	Type (e.g. pipe fitting insulation)	Corrugated paper pipe insulation; pipe fitting insulation	Corrugated paper pipe insulation	
Material	Category (surfacing TSI or misc.)	TS.	TSI	
	Homogen- eous Sample Area	2, 3	2	
	Functional Space	15-1 Basement reproduction work area	15-2 First floor corridor	

Friable Asbestos F. Lesment Checklist (Gilancha, 2), 19, 19, 19, 19, 19, 19, 19, 19, 19, 19	Cameron Station Building 15	imple Are	Part 1: Damage/Risk	Visible evidence of physical damage: (5) High; 4 Moderate; 2 Low; 1 Minimal; 0 None	• Water damage: 3 Yes; O No	 Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) 	A. Sprayed- or trowelled-on: 3 <1 ft. or ceiling panel contaminated; 2 1 < ft <5; 1 <5 ft; 0 <5 ft & no routine maintenance		• Type of material (If area contains several friable materials, score the one with the greatest quantity).	0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls	 Potential for Contact based on material proximity to area occupants: 	A. $< 10 \text{ ft}$: (8) High; 5 Medium; 2 Low	B. > 10 ft: 5 High; 3 Medium; 0 Low	 Asbestos content: Use percentage for material with highest probability for becoming airborne: 	$(\sqrt{1})$ 1 < $\% \le 30$; 3 30 < $\% \le 50$; 5 > 50%; NO HAZARD Samples contain no asbestos	Sample Numbers: 299, 300, 304, 301, 302, 306	Month Total
--	-----------------------------	-----------	---------------------	---	-----------------------------	--	---	--	--	---	--	--	-------------------------------------	---	--	--	-------------

Inspector/Date Barnes/ Gladle, 2/1/41	Material Type(s) Corrugated pages jugge provident
Cameron Station Building	Homogeneous Sample Area #(s) 3

Functional Space 15-1 Chairmant reproductions work anter

Part 2: Exposure

- Friability: (6) High; 3 Moderate; 1 Low
- Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $10 \le \text{ft}^2 < 100$; $2 100 \le \text{ft}^2 < 1000$;
 - Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.) (4/Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)
- 5 Interior supply; 2 Interior return; 1 Fiber potential in air supply;
- Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
 - 5 High (constant vibration); (2 Medium (occasional vibration); • Activity (Refers to forces such as vibration, water or steam acting on material.)
- 4 Carpet; 2 Seamed or rough surface; A Smooth surface; 0-4 Unique situation (e.g., dirt floor)
- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
- A. Sprayed- or trowelled-on ceiling or walls
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire;
- B. Pipe, boiler, duct or other material percent of total exposed and visible to occupants
- 3 $50 < \% \le 75$; (4) $75 < \% \le 100$ $1 \le 25\%$; $2 \le 5 < \% \le 50$;
- 4 501 ≤ pop ≤ 1000; $3 201 \le \text{pop} \le 500$ • Population: $1 \le 9$ or for corridors; $(2/10 \le pop \le 200)$; 77

Exposure Total

Woodward-Clyde Federal Service:

5 > 1001 or medical/youth centers/residential

November 19, 199

Cameron Station Building is Inspector/Date Eqrnes Gianelles 2/191 Homogeneous Sample Area #(s) 2 Naterial Type(s) CONUCATE FORMULATION Signatures (STOR CONUCATE) Functional Space (STOR CONUCATE)	Part 1: Damage/Risk Visible evidence of physical damage: 5 High; 4 Moderate; 2 Low; 1 Minimal; 0 None	Water damage: 3 Yes; (9/No Proximity of mark all that apply but score only the higher of A or B; (maximum score of 3 points.)	Sprayed- or trowelled-on: Sprayed- or trowelled-on: Sprayed- or trowelled-on: Contaminated ceiling panel requires removal; Thes, routine maintenance required; On No routine maintenance required; On or routine maintenance required; On or routine maintenance required;	• Type of material (If area contains several friable materials, score the one with the greatest quantity). 0-4 Other friable material;	• Potential for Contact based on material proximity to area occupants: A. < 10 ft: 8 High; 5 Medium; (2) Low B. < 10 ft: 5 High; 3 Medium; 0 Low	bestos content: Use per [1]
Cameron Station Homogeneous Sar Functional Space	• Visible ev	Water da Proximity	A. Spra B. Pip	• Type of	Potential A. < B. <	Asbestos Sample

Inspector/Date Barre Guarder 21/19	Material Type(s) Cumpated Form Det
Cameron Station Building	Homogeneous Sample Area #(s)

Part 2: Exposure

• Friability: 6 High; (3) Moderate; 1 Low

Functional Space 15-2

• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $\binom{7}{1} 10 \le \text{ft}^2 < 100$;

 $2 100 \le \text{ft}^2 < 1000;$

3 > 1000 ft₂

• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)

(4) Rough; 3 Pitted; 2 Moderate; 1 Smooth

5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above

• Ventilation: (Mark all categories that apply; maximum of 7 points.)

0 No perceptible air flow in area • Air Movement: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream;

• Activity (Refers to forces such as vibration, water or steam acting on material.)

5 High (constant vibration); 2 Medium (occasional vibration); 0 Low

0-4 Unique situation (e.g., dirt floor) (4) Carpet; 2 Seamed or rough surface; 1 Smooth surface;

• Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

• Floor:

A. Sprayed- or trowelled-on ceiling or walls

3 Railing or wire; 1 Suspended ceiling; 2 Encapsulation; B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants

 $3 50 < \% \le 75$; $1 \le 25\%$; $2 \ 25 < \% \le 50$;

• Population: $(1) \le 9$ or for corridors;

 $(4)75 < \% \le 100$

 $3 201 \le \text{pop} \le 500$ 2 $10 \le \text{pop} \le 200$;

Exposure Total

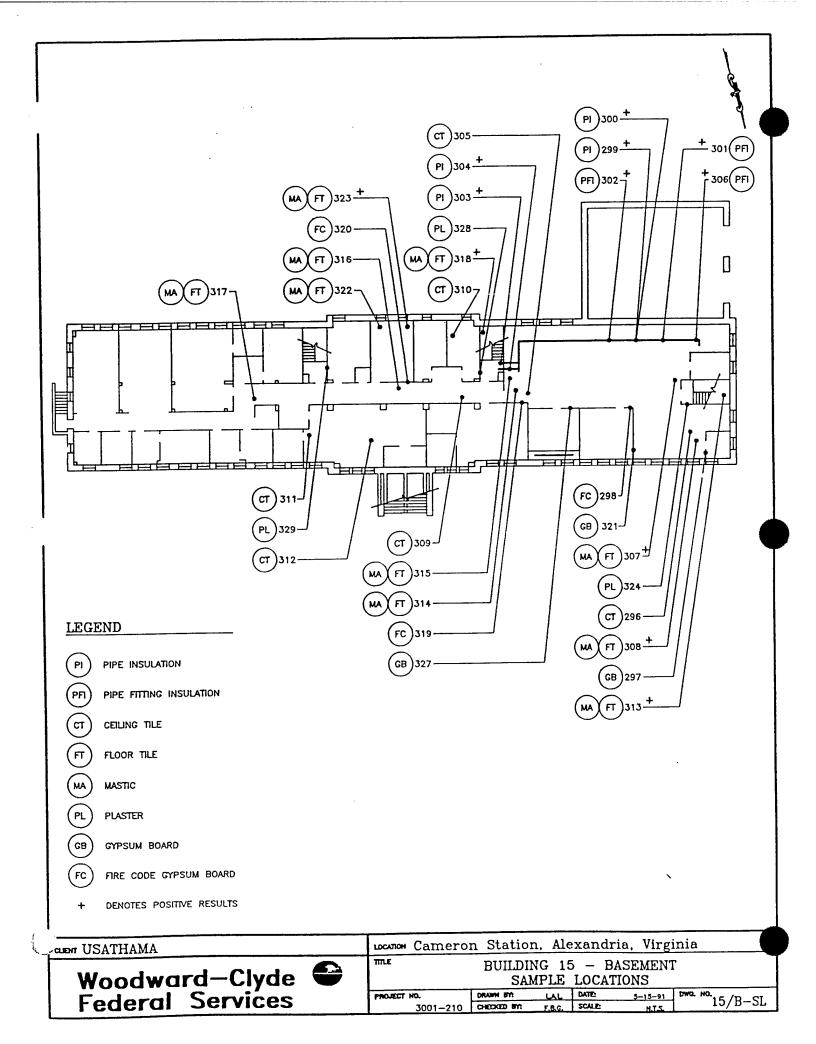
Woodward-Clyde Federal Service

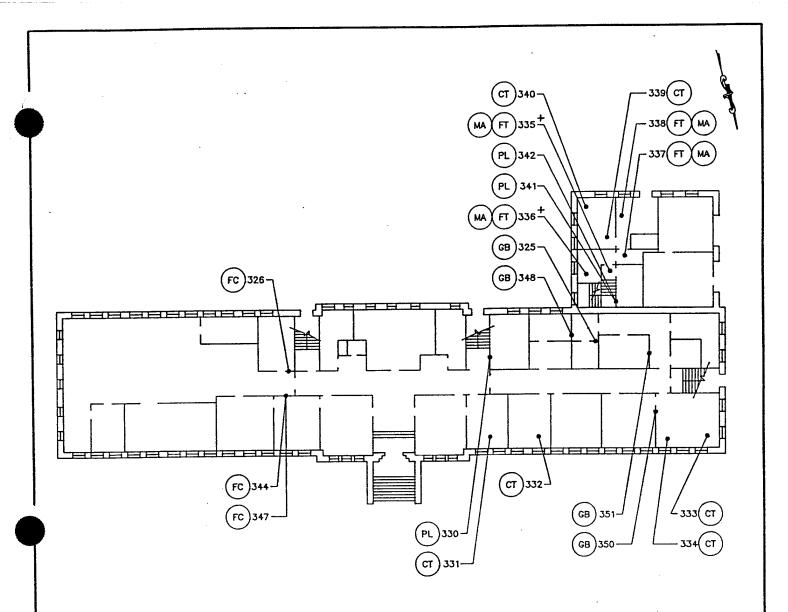
5 > 1001 or medical/youth centers/residential

4 $501 \le pop \le 1000$;

November 19, 195

APPENDIX 15-C BUILDING DRAWINGS





LEGEND

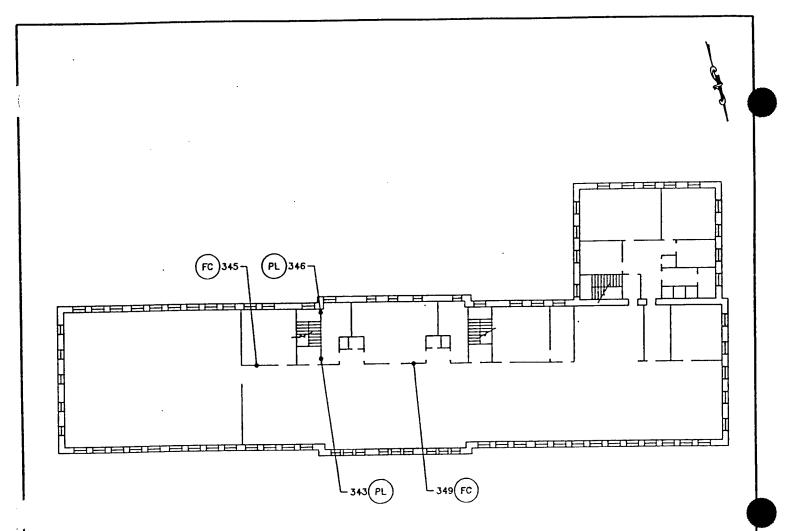
- CT CEILING TILE
- FT FLOOR TILE
- (MA) MASTIC
- (PL) PLASTER
- (GB) GYPSUM BOARD
- (FC) FIRE CODE GYPSUM BOARD
 - + DENOTES POSITIVE RESULTS

USATHAMA

Woodward-Clyde Federal Services



LOCATION Camero	n Statio	n, Ale	exandı	ria, Virg	ginia
TITLE	BUILDIN	G 15	- FIF	RST FLO	OR
	SAI	MPLE	LOCAT	CIONS	
PROJECT NO.	DRAWN BY:	LAL	DATE	5-15-91	DWG. NO. 15/1-SL
3001-210	CHECKED BY:	FRG	SCALE:	NTC	10/1-00



LEGEND

- (PL) PLASTER
- FC FIRE CODE GYPSUM BOARD

CUENT USATHAMA	LOCATION Camero	n Statio	n, Al	exand	ria, virg	giiia
Woodward-Clyde	TILE	BUILDING			COND FL TIONS	OOR
Woodward-ciyde -		DRAWN BY	MLTT	DATE		1 mm NO /
Federal Services	3001-210	CHECKED ST			3-13-91 2.T.H	DWG. NO. 15/2-SI
i Cuci di Colori	3001-210	GROWED DIT	7,0,0	1 11	1147	

APPENDIX 15-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Statio.				Walkthrough Survey a Sheet 1 of
Post	Commender, Police	EXTERIOR	<u>IOR</u>	Inspector Date //o/a/
Exterior Siding				
Masonry 区 Steel/Al	Steel/Aluminum	Wood	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	Soffit			
Sample Y N v.o	Condition G	9 R	Quantity	
Shingle (asphalt/fiberglass)	Tar & Felt 时	Steel Panel	Fiberglass Panel	Other
Sample Y N	Condition G	Įr. Gr	Quantity SF	
Exterior Mechanical Systems	<u>Sample</u>	Condition	Quantity	Location
Vent pipe	×	GFP		
Chimney \square	X	GFP		
Louvers	X	GFP		
A/C Units	Z X	GFP		
Other	z >	GFP		
		S	STRUCTURAL	
Wood Joists/Beams □	Steel Joists/Beams	Wood Columns	☐ Steel Column ☐	Concrete Column 🖻
Sample Y (N)	Condition G	E E	Quantity SF	
Sample Y N	Condition G	F P	Quantity SF	
Firewalls - Steel	Masonry E		Firedoor	
Sample Y 🕥	Condition G	F P	Quantity	
				Woodward-Clyde Federal Services

D:\USA\CAMSTA\ASBESTOS.SUR

Mayamhar 14

2 of 4

Cameron Statio

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Building 1/5			W/W		Inspector/Date: 1/10/91	191	
	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
Other							
*Type of Insulation: 1. Premold 2. Planket	5. Trowelled-on						

6. Mud
7. Other

2. Blanket3. Aircell4. Fiberglass

Woodward-Clyde Federal Services

3 of .

ameron Station

HVAC

uilding MS					Inspector/Date:	'Date: 1/10/91		
	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
				_				
Pipe	South wast donner	465	Aireell	yes	fair	300	7	3-6"
	of Busment							
4	Chambers north wall (from back of course)	766	pucesi	yes	fer	00/	7 7	3-6-
202	nechonical com	ž	Aireall	871	far	64	<i>y</i> 7	3-6"
	of 6164.)			,				
Pietings	150 Floor S.W. Co.	3	Arcel	can	/ai	/020	<i>.</i>	3-6"
	stars to poinc star.			,		094/		
						•		
Outer F. Hras	/ sach west corner	428	mudded Ann	yes	Jan-	20	on AHM	
7		468	, ~ "	,	1	01	, ,	
For May	Anest 6164. no	٠ •	;	ì		2 /	Ş	•
A.	to poince star.					132		
*Time of lacination								

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

LLS/FLOORS/MISC. INTERIOR - CEILING

ilding As			Inspector/Date:	ate: 1/10/91		
Material*	Color/Pattem	Location	Sample Y N	Condition G F P	Quantity	
Ceiting Tite A 1 2x4	white/ Lighterne	see slandwhenhand	No	good	316	J.
Cerim Tile "Z. 12" X 12"	white/w/sm rendom	Sec plan	408	good	3830	¥
Certhy Tile 3. 13×12	white / w/3 motion	sec Dlown	405	good	700	Z
I	white forsume	Secolar	soh	sood	7450	2
1	Shite/ Tames pleated	Sec plantibura	No.	03000		V
1.1/2 /1.10 12 12 12 12 12 12 12 12 12 12 12 12 12	white / when	SCC 206-	265	poot	1350	
() Tile " 1 2x4'		SPC Obn	2, 2	poob	776	
Constileto Bisizi	White/w/farge	Secolar	2 2	Joseph P	1006 1100	Ý
1000 110 41 0001 12x12	Brown withsed red	FRONT BUTHANICE	2 No	ر معمدی		N/
floor TIL 2 grg"	gran	Sec plan) hee	acod	019	l
Ploor Tile #3, gig.	green	Scc plan	ر 2	good	385	
floor Tile #4 9 wg.	brown	V	, 68	good	2100	٠ ٧
Flooren 15 to 12 12	the boar	Sce Dan	ر درو	good	576	
ploor Tile " 6 - 929"	blach	Ser plan	25	awad	2000	く
Mobr file 7 1 12 x 12	and the	Sec. 262	468	Gyerd	659	Y
Floor Atilets, 15-615"	bown accordan	Secolar	468	geod	225	
			D	0		

Material siling 2x4 tile 2x2 tile 1x1 tile 1x2 tile Plaster Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services

M 1 10 1000

INTERIOR - CEILING/. ...LLS/FLOORS/MISC.

		×	6						_	 	 	
	Quantity	6250 50	48464 45,50v		75-00							
Inspector/Date: 1/10/9/	Condition G F P	good	Soarl	0	food	0						
Inspector/D	Sample Y N	405	200	>	ues							
	Location	Hallway 5 240 flow 1 35 long	Through out 6/de.		Carley through out	,						
	Color/Pattern	panted	painted		painted							
ilding 1915	Material*	freede dry wall	Lear le	9	Master							

Material siling 2x4 tile 2x2 tile 1x1 tile 1x2 tile Plaster Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

Woodward-Clyde Federal Services

At ... 1 10 100

UISANCAMSTANASBESTOS SUR

APPENDIX 15-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

Lead of the property of the formal property of the second Woodward-Clyde Federal Services



1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001 1 Bldg #

Person Submitting: DAVID BARNES Date Analyzed Date Sampled

MICROSCOPY LIGHT POLARIZED **H**0 SUMMARY

		//	;	ASBEST	9 80		ASBESTOS &	/ OTHER FIBROUS MATERIAL &/	R FIBROU	IS MATERI	N. 8/			
MPLE	ASBESTOS	CHRYSO-		CROCIDO-		TREMO- ACTIN- ANTHOP-	ANTHOP-	MINERA	FIBROUS	MINERAL FIBROUS ORGANIC			ANALYST	
ដ	PRESENT*	TIPE	AMOSITE	LITE	LITE	OLITE	BYLLITE	MOOI	GLASS	FIBERS	OTHER	PARTICULATE	ID**	COMMENT
296	×	:	!				1		40-50	25-30	!	25-30	မွ	
297	z				1		1	!	₽	25-30		70-75	ပ္ပ	
298	z	1 1	!	;	1		!	1	01-05	25-30		65-75	ပ္ပ	
299	D4	01-05	;				: :	1	-	60-70		30-35	မွ	
300	ρ,	05-10	;				1	1	}	55-65	1	30-35	ပ္ပ	
301	ρι	01-05	20-25		1	•	!	***************************************	1	01-05		70-75	ပ္ပ	
302	ρι	05-10	25-30			1	!			01-05	1	60-65	ပ္ပ	
303	Α	20-25	;			!	1	!		35-40		35-45	ၓွ	
304	ρι	01-05	!				1	!		60-70		30-35	દુ	
305	z	1	:	į		1	1	1	35-45	25-30	1	30-35	႘ွ	
306	<u>ρ</u> ,	01-05		!	;		1	45-55			1	45-50	ပ္ပ	
307	D	01-05	!		;	}	1	1 1 1	;	7	:	95-99	ઇ	
308	<u>ρ</u> ,	05-10			!		1	1	!	₹	:	90-95	ઇ	
309	z						1		30-35	30-40	!	30-35	દ્ધ	

N - ASBESTOS NOT OBSERVED COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.







AMA Analytical Services, Inc.

| SHIP | FORM | STATEMENT | FILMS | MATERIAGE CARRESTORY | Woodward-Clyde Federal Services



1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 15
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/01/91 Date Analyzed : 02/13/91

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED 回 0 SUMMARY

COMMENT														
ANALYST ID**	8	မွ	ပ္ပ	ပ္တ	ပ္တ	ပ္တ	ပ္ပ	ပ္တ	ပ္တ	ပ္တ	ပ္တ	ပ္တ	ပ္တ	ខ្ល
PARTICULATE	30-35	30-35	30-35	86-06	100	100	100	100	86-06	70-75	75-80	75-80	100	95-99
AL &/ OTHER	! . !		1	!	1 1 3	!	1	•	!			1	₽	
CTHER FIBROUS MATERI. MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	30-35	30-35	30-35	01-05	₽	7	7	₽	01-05	25-30	20-25	20-25	.	₹
R FIBROUS FIBROUS GLASS	30-40	30-40	30-40		1	7	1	1		∵	₽	₽	1	;
/ OTHER FIBROUS MATERIAL \$/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	!	:	1	;	1 1 1	1	1	1	1	;		1	1	1
/	:	1		1	1 1	1	1	1	1 1 1	1 1 1	1 1 1 1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
ACTIN- OLITE	1				;	1		1	1	1	1	1	1	
OS * TREMO- LITE	1	1	1	1	1								!	1
ASBEST CROCIDO- LITE		1 1	1			1		1	1				:	1
AMOSITE	1	ŀ	1	1 1 1	1 1	!	;		1				;	1
/ CHRYSO- TILE !	1	;		01-05		7	₽	₹	01-05		1 1 1 1	;	₽	01-05
ASBESTOS PRESENT*	z	z	z	ρų	Δ,	ρι	д	Ω,	p.	z	z	z	Ωŧ	p.
MPLE ID	310	311	312	313	314	315	316	317	318	319	320	321	322	323

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

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AMA Analytical Services, Inc.

n willty (worth unit in total (willts) excredited telesionally Woodward-Clyde Federal Services



1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 15
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/01/91

Date Analyzed : 02/13/91

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED OF SUMMARY

		COMMENT														
	ANALYST	ID**	ន	ន	႘ွ	႘	႘ၟ	႘ၟ	႘	ઇ	દ્વ	႘	ပ္ပ	ន	ន	ઇ
		PARTICULATE	100	60-70	60-65	65-70	100	100	100	20-25	15-20	15-20	20-25	86-06	95-99	95-99
/ 1 TX		OTHER	;	į	1		!		i	-	!	[1	1	;
S MATERI	ORGANIC	PIBERS	7	30-35	35-40	30-35	1	.	7	75-80	80-85	80-85	75-80	01-05	7	01-05
R FIBROU	MINERAL FIBROUS ORGANIC	GLASS		01-05	7	1	.	!		1	1	1	1	7	1	1
/ OTHER FIBROUS MATERIAL &/	MINERAL	WOOL	1	1	1	1	1 1	1		;		1	1	!	1	1
/	ANTEOP-	HYLLITE	1	!	-	!	1 1	1	1	:	1 1 1		-	!		!
/	TREMO- ACTIN- ANTHOR-	OLITE			1		!	1			1	1	-		1	!
* so:		LITE		•	1	1				1	:		1		1	;
ASBEST	CROCIDO-	LITE	1	}		!		;	;		ŀ		!	•		1
		AMOSITE		}	;	1	!		;	;	;	1				1
//	CHRYSO-	TILE 1						1	}			1	1	01-05	01-05	1 1 1
	ASBESTOS	PRESENT*	z	z	z	z	z	×	×	z	z	×	z	д	Д	z
	SAMPLE	A	324	325	326	327	328	329	330	331	332	333	334	335	336	337

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

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AMA Analytical Services, Inc.

on ABEN (#244) and BVLAN (#1143) Accredited Laboratory Woodward-Clyde Federal Services



1 Church 8t. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 15
Job Bite : Cameron Station
Job Number: 3001

Date Sampled : 02/01/91 Date Analyzed : 02/13/91 Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED **H**0 SUMMARY

COMPENT		•												
ANALYST ID**	g	ខ្ល	ខ	ន	ខ្ល	ខ្ល	ខ្ល	မွ	છ	ខ្ល	ပ္ပ	ည	ម្ង	ន
PARTICULATE	95-99	20-25	20-25	100	100	100	60-65	50-55	100	65-70	60-65	50-55	60-65	86-06
AL &/	1	1 1	1	1	1	!	!	!	1 1 1	!	1	1	!	1
S MATERI ORGANIC FIBERS	01-05	75-80	75-80	7	₽	₽	35-40	45-50	₽	30-35	35-40	45-50	35-40	01-05
CTHER FIBROUS MATERI. MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS	1	1	1		1 1 1	1	1	1	1	1		₹	7	01-05
/ OTHER FIBROUS MATERIAL \$/ MINERAL FIBROUS ORGANIC WOOL GLASS FIBERS OTHER	1		1	:	1		1	1	1	;		!	1	
HERYSO- CROCIDO- TREMO- ACTIN- ANTHOR-	1	!	1	i	1	1	1		1	1	1	1	1	1 1 1
TREMO- ACTIN- ANTHOR- LITE OLITE HYLLITE	į	1	;			1	1	1	1			1	1	1
OS . TREMO- LITE	ļ	1		1		!		!		1	1 1 1 1		1	
ASBESTY CROCIDO- LITE		1	!	!	!	1		ļ	•		1	!		
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CHRYSO- TILE A	1	1		1	!	1	1	1	1	1	!	!	3 1	!
ASBESTOS PRESENT*	z	×	z	×	z	×	×	z	z	z	z	×	z	z
SAMPLE	338	339	340	341	342	343	344	345	346	347	348	349	350	351

COMMENTS: * P * ASBESTOS PRESENT

** ANALYST ID CODE (SEE SIGNATURE)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

4 PAGE(S)

LAST PAGE OF

N = ASBESTOS NOT OBSERVED

G. Edward Carney (Gg

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APPENDIX 15-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde 'ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BE1 Laboratory (2): PC

COC By: DMB

Field Office:

Woodward— , Federal Services c/o Charles Brummett EACA, RPMO, Bidg. 17 Cameron Stelan Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

(xc) BLDG 15 Sample Date: 03/0/14/

						1	— Т	1	T			1 1		
r of Container	Нитр			 						Total Number of Containers	\			
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<u> </u>														
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PCB Wipe				-	_					. 2				
0037					+					7				
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(zm/2g) s839/900	90MJ			\pm	\pm					1 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Accepted by: Woodward-Clyde			l
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AOC	LMOS		-	+						خ م	څ		ف ا	ı
TEST NAME	3000 Sample				\dashv					Accepted by:	epted		Comments:	l
Flog Code (1)	slamp2				\dashv					Accepted by:	Acc	Date:	. S	
Techniques (1)	elamo2	<u> </u>									ī		i	h
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epth Ft. (5)											-	-\		Ī
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Site Depth Type Ft. (5)										3	,-	uner		
Site Type (4)										37		aunace		
											//	Maure		
Site Type (4)					22						// //	L'Maure		
File Site Type Type (4)			2.2		48	66	04	01	203		////	X 17.		
File Site Type Type (4)	(2)	256	303		346	299	300	301	302		////	X 17.		
Site Type (4)		29%	201		246	299	300	301	302		/ ///	Signature: L'Ulunace		
File Site Type Type (4)		 		<u> </u>			-			Signature: Mr Berne	1	Signature: 16		
WCFS File Site Field Type Sample (3) (4)	(c) c	 		<u> </u>			-			Signature: Mr Bern		Signature: 16		
WCFS File Site Field Type Sample (3) (4)		 		<u> </u>			-			Signature: Mr Bern		Signature: 16	Jac.	
File Site Type Type (4)	(5)	 		<u> </u>			ASB015 300		45.8015 302	Signature: Mr Bern		1300 Signature: XLLC	esser	
WCFS File Site Field Type Sample (3) (4)		ASB015 296		<u> </u>	456015 348	453015 289	-	458015 301		Time: (5 05 Signature: Mr 12201		1300 Signature: XLLC	nesser	
Site WCFS File Site IVPE ID Sample (3) (4)		 		<u> </u>			-			Time: (5 05 Signature: Mr 12201		Time: 1507 Signature: 166	Jassack	
Site WCFS File Site IVPE ID Sample (3) (4)		 		<u> </u>			-			Time: (5 05 Signature: Mr 12201		Time: 1507 Signature: 166	Desposer	
WCFS File Site Field Type Sample (3) (4)		 		<u> </u>			-			1/5/ Time: (5 05 Signature: 177) Karr		Time: 1507 Signature: 166	Degresser	
Time of Site WCFS File Site Sampling ID Field Type Type (Military (10) Sample (3) (4)	Clock) (4)	458015	115 3015		1356015	458015	458015	458015	1358015	Woodword-Clyds 21/5/ Time: 1505 Signature: My 1222	: Rase Lab, Inte-	1300 Signature: XLLC	0	
Time of Site WCFS File Site Sampling ID Field Type Type (Military (10) Sample (3) (4)	Clock) (4)	458015	115 3015		1356015	458015	458015	458015	1358015	Woodword-Clyds 21/5/ Time: 1505 Signature: My 1222	: Rase Lab, Inte-	3-78 4/ Time: 1300 Signature: LL	0	
Time of Site WCFS File Site Sampling ID Field Type Type (Military (10) Sample (3) (4)		 	115 3015	<u> </u>			458015			1/5/ Time: (5 05 Signature: 177) Karr	: Rase Lab, Inte-	Time: 1507 Signature: 166	Commonls:	

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Woodward-Clyd ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

3001

WCFS Project No. 30C Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: DMM2

Field Office:

Woodward— Federal Services c/o Charles Brummett EACA, RPMO, Bidg. 17 Cameron Studion Alexandrio, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

BLDG. 15 Sample Date: $G2 | O1 | \mathcal{H}$

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Woodward-Clyde 'ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

Woodward Federal Services c/o Charles arummett EACK, RPMO, Bldg. 17 Cameron Station Alexandria, VA (703) 274–6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

COC By: DMJB.

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Woodward-Clyd 'ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: DM 18

Field Office:

Woodware Conditions of Federal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Comeron Stotion Aexandrio, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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Woodward-Clyde 'ederal Services

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 20113

Field Office:

Admin. Office:

Woodward- , Federal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Comeron Station Aexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

BLDG. 15 Sample Date: 622191

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Woodward-Cly ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: DMLB Initials

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Sample Date: 0210191

Field Office:

Woodward : Federal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Cameron Station Alexandia, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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Woodward-Clyde 'ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

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Woodward- Federal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Cameron Station Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

COC By: WWB.

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WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

Woodward-Clyd :ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIM 1/3

BLDG. 15

Sample Date: 02 10/191

Field Office:

Woodward— ... Federal Services c/o Charles Brummett EACA, RRMO, Bldg. 17 Cameron Station Alexandria, VA (703) 274—6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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BUILDING 16

16.1 DESCRIPTION

Building 16, which houses the installation's clinic, is a wood frame structure built on pilings. The roof consists of asphalt shingles over roofing felt; the exterior walls are aluminum over wood siding. Inside, the floor is tile over wood and the walls and ceiling are finished with fiber board. Heat is supplied by an oil-fired furnace. No steam lines enter the building.

16.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 16-A,C,D,E, AND F. A summary of this data is presented below.

16.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 16.

16.2.2 Suspect Nonfriable ACM

Three homogeneous areas of suspect nonfriable ACM were identified and eight bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these materials. One material, 12" x 12" white floor tile, was reanalyzed using TEM. This method of analysis determined that the floor tile contained asbestos. No assessment of this nonfriable material was performed. However as ACM it should be included in an O&M Program.

16.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the roofing felt, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

16.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

16.4 AREAS NOT ACCESSED

All areas in Building 16 were accessed.

16.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

16.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 16-A

Appendix 16-C

Appendix 16-D

Appendix 16-D

Appendix 16-E

Appendix 16-E

Appendix 16-F

Acm Survey Results

Building Drawings

Walkthrough Survey Data Sheets

Laboratory Certificate of Analysis

Sample Chain-of-Custody Forms

Appendix B is not applicable to this building report.

APPENDIX 16-A ACM SURVEY RESULTS

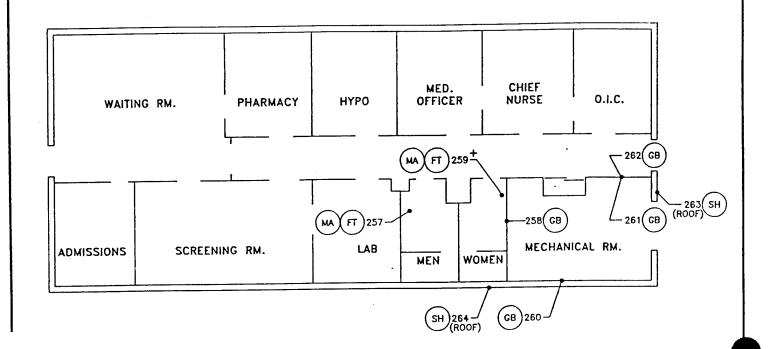
ACM Survey Results for Building 16

	Comments			Sample 262 is a QC for sample 261.	12" x 12" white floor tile
	Sample Results (% and type of asbestos)	Assume ACM	None detected None detected	None detected None detected None detected None detected	None detected < 1% chrysotile¹ 11-13% chrysotile² ¹using PLM ²using TEM
	Sample #	Assume ACM	263 264	258 260 261 262	255 259
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	F.S.	n T	ις O
Quantity	Estimated Amount	2200	2200	0009	
	Condition (Good, Fair, or Poor)	Bood	Poog	poog	D 00 D
	Friability (Non, Low, Mod. or High)	Non	Non	Non	с о Z
	Location (where material is found)	Roof	Roof	Maeting room	Throughout building
Material Description	Type (e.g., pipe insulation; floor tile)	Roofing Felt	Shingles	Gypsum board	Floor tile & mastic
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Surfacing	Misc.
	Homogen- eous Sample Area	-	2	м	4

Woodward-Clyde Federal Services July 2, 1991

D:\ASBESTOS/B16.asb

APPENDIX 16-C BUILDING DRAWINGS



LEGEND

- FLOOR TILE
- MASTIC
- SHINGLES
- GYPSUM BOARD
 - DENOTES POSITIVE RESULTS

CLEM USATHAMA

Woodward-Clyde Federal Services



3001210	CHECKED BY	F.B.C.	SCALE:	N.T.S.		16-SL
PROJECT NO.	DRAWN BY:	LAL	DATE:	5-22-91	DWG. NO.	10 01
TITLE	SAl		DING LOCA'			
LOCATION Camero	n Station	n, Ale	exand	ria, Virg	inia	

APPENDIX 16-D WALKTHROUGH SURVEY DATA SHEETS

Caronia Chat				Walkthrough Survey a Sheet 1 of 4
Callicture Station		EXTERIOR	IOR	Inspector Date 12/6 /90
Exterior Siding		and w	1 . 11 sullons	
Masonry	Steel/Aluminum	Wood # CON	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	Soffit			
Sample Y (N)	Condition	F P	Quantity 2207 SF	
Roof Shingle (asphalt/fiberglass)	Assum new Fare Felt	Steel Panel	Fiberglass Panel □	Other 🗆
Sample (Y) Shungto	Condition	Ţī.	Quantity SF	
Exterior Mechanical Systems	Sample	Condition	Quantity	Location
e)	Z (2)	G 44		
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nits	(Z)	G 4		
Other	z >	E4		
		SI	STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	Wood Columns	s Steel Column	Concrete Column
Sample Y (N)	Condition G	F P	Quantity SF	
Sample Y N	Condition G	ዋ	Quantity SF	
Firewalls - Steel	Masonry		Firedoor	
Sample Y N	Condition G	ЯР	Quantity SF	fv.
				Woodward-Clude Federal Services

) -}

LECTRICAL/TELEPHONE BOILER, FURNANCE,

Building					Inspector/Date:		
	QI #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Fumace	oil	>	/	,			
Tanks/Vessels							·
~							
Elec./Telephone							
				-			
		٠					
Other							
-							
	,						
*Type of Insulation:							

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

10 C

11.AC

Building					Inspector/Date:	/Date:		
	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	was have	*	Februthiso	N				
	(2) throughout olds	~	>					
	9							
Pipe		·						
•								
Fittings								
Other								
*Type of Insulation:	on:							

1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

November 19, 1



INTERIOR - CEILING/WALLS/FLOORS/MISC.

F					- 1	 <u>-</u>		 ī	 -7	- T	 ī		·	
	Quantity	2000					607							
ıte:	Condition G F P	0				•	9							
Inspector/Date:	Sample Y N	٨	•	N				`						
	Location	though out	<i>o</i> .	**			much som							
	Color/Pattern	Buhn		"			7	9 9						
uilding	Material*	ET 12×12		film brown - cellin 8	`		Lund Lund W.							

*Material	
Ceiling	
2x4 tile	
2x2 tile	
1x1 tile	
1x2 tile	
Plaster	
Other	

Floors 9x9 tile 12x12 tile Sheet

> Walls Gypboard/Drywall Plaster Other

Woodward-Clyde Federal Services

APPENDIX 16-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

nite; in series of the production token, Woodward-Clyde Federal Services

1 Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 16 Job Site : Cameron Station Job Number: 3001

Date Sampled : 01/30/91
Date Analyzed : 02/08/91

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED 日 〇 SUMMARY

		•								
		COMMENT								
	ANALYST	ID**	႘ွ	႘ွ	ပ္ပ	ပ္ပ	ပ္ပ	ပ္ပ	ပ္ပ	႘
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S MATERI	ORGANIC	FIBERS	₽	15-20	7	05-10	35-40	45-50	7	₹
R FIBROU	MINERAL FIBROUS ORGANIC	GLASS	į	7					20-25	20-25
/ OTHER FIBROUS MATERIAL &/	MINERAL	WOOT	1	,	1	1	1	1	!	1
/	ANTHOP-	HYLLITE	ļ	1	1	!	1	1	!	!
	ACTIN-	OLITE		!	!	1	!	!	1	
OS	TREMO-	TILE							!	ļ
/ ASBESTOS	CROCIDO- IREMO- ACTIN- ANTHOP-	LITE	1	!		1 1		!	1	;
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	SAMPLE	Q ,	257	258	259	260	261	292	263	264

LAST PAGE OF 1 PAGE(S)

** ANALYST ID CODE (SEE SIGNATURE)

N = ASBESTOS NOT OBSERVED

COMMENTS: * P * ASBESTOS PRESENT

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GD

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





AMA Analytical Services, Inc.

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May 15, 1991

Woodward-Clyde Federal Services One Chruch Street, Suite 404 Rockville, MD 20850

RE:

TEM Bulk Analysis Cameron Station

JOB SITE:

Bldg. 16

JOB LOCATION:
PROJECT NUMBER:

Cameron Station

3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.		DOLOMITE/ CALCITE	NON FIBROUS MINERALS
259	11 - 13%	23%	45%	19 - 21%

Woodward-Clyde Federal Services May 15, 1991 Page 2 of 3

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically. A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios \geq 5:1 and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

Woodward-Clyde Federal Services May 15, 1991 Page 3 of 3

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely, AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos

Electron Microscopist

Robert M. Powell Laboratory Director

LHB/kec

APPENDIX 16-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde ederal Services

3001

WCFS Project

Installation (2): CU Sample Program (3): BEI Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Woodward-C., sderal Services c/o Charles Brummett ECA, RPMLO, Bldg. 17 Cameron Stuton Aexandria, VA (703) 274-6548 Field Office:

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

COC By: DMIB

Sample Date:	Sample Date: 2/12/19/19/		BLDG 16				(301)	(301) 309-0800	
WCFS Field Sampler Initials	Time of Sampling (Military Clock)	Site 10 (10)	WCFS Field Sample ID (8)	File Type (3)	Site Type (4)	Depth Ft. (5)	PCB Wipe TCD0 TCD0 TCLP TCLP TCLP TCLP TOLE TO	TPHC (9c)	
(3)	(4)				·		TMOR TMOR TMOR TMOR CODE CODE Zombje	умире	
981		48816	257		:				
150		458016	388						
689		1158016	259						
186		158016	098						
Filk		458016	266						
134		48016	792						
7,96		458016	E9E						
Refinquished by: Woo	odward-Clyde	Ime: 15-28	Signoture: M. Balon	2 mg			Accepted by: Dave Lab, Law. Date: 1-31-91 Time: 15: 40 Signature: Date:	of Sonkijers	
Relinquished by:	Relinquished by: Rees tob, treates: \$28.7/	Time: 1302	. Signoture:	Lan			Accepted by: Woodward-Clyde Date: Signature:		
Comments:	lead	dead open					Comments:		

White: Pace Lab Yellow: WCFS Chemist Pink: Return to WC

r sample receipt Gold: Return to WCFS with residual samples

3001 띪 Installation (2): CM Sample Program (3): Laboratory (2): PC

WCFS Field Sampler Initials (3)

188

odward-Clyd ederal Services CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES Woodward-Clyde

coc By: 2 m1/3

Field Office:

Woodwark
c/o Charles C. Ammett
CACA, RRMO, Bldg. 17
Cameron Station
Alexandia, VA
(703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800 Admin. Office:

Number of Containers (og) OHGT PCB Wipe 0001 Asbest **U**OT Signoture: JIN a +05 S:5/ (RI) CHAT **CUM** 1103 ElotoM JAT **JOT-NOV** Accepted by: Woodword-Clyde (26/26) 8234/220 Accepted by: Pers Lab, las. 90MU (sm/ze) s804/900 Date: 1-31-91 9011 SADC 9040 SOM AOC SOMO Comments: Depth Ft. (5) Site (4) 1√2 = 1 (3) € 81001B WCFS Field Sample ID (8) 458016 Time: 15 35 Site (30) Sample Date: 2/ 130 9/ Wgodward-Chyde Time of Sampling (Military Clock) (4) Relinquished by: Race Lab, Inc. Date: \$ 28-9 191

Refinquished by:

Comments

BUILDING 17

17.1 DESCRIPTION

Building 17 is a "U" shaped, one-story building with a flat roof covered with tar, felt and gravel. The building was initially constructed with open sides on the inside of the "U" for use by the motor pool. It is now fully enclosed and occupied by Post Engineer's offices and shops. The exterior walls are masonry on the outside of the "U" and aluminum siding over cement siding on the newer inside sections. Interior walls are gypsum board. Office area ceilings are finished with tile or gypsum board ceilings; the shop areas are open to the roof. The floor is concrete with many areas covered with tile and carpet. Heat is supplied by Building 21, the Boiler House, through underground steam pipes.

17.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 17-A through 17-F. A summary of this data is presented below.

17.2.1 Suspect Friable ACM

One homogeneous area of suspect friable ACM was identified and one bulk sample was collected. Laboratory analysis using PLM confirmed the presence of asbestos in this material:

Premolded pipe insulation

Assessment of this material, which is found in the overhead area in the east wing, indicates a damage factor of 15 and an exposure factor of 19. According to the GAHA Index, this material ranks as Priority B.

17.2.2 Suspect Nonfriable ACM

Twenty homogeneous areas of suspect nonfriable ACM were identified and forty-eight bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eleven materials:

- Cement siding
- FT 1 9" x 9" dark brown floor tile and mastic
- FT 2 9" x 9" red brown floor tile and mastic
- FT 3
 12" x 12" white marbled floor tile and mastic
- FT 5
 12" x 12" light brown floor tile and mastic
- FT 6
 9" x 9" black floor tile and mastic
- FT 7 9" x 9" tan with brown streaks floor tile and mastic
- FT 9 9" x 9" tan floor tile and mastic
- FT 10 9" x 9" red floor tile and mastic
- FT 11 9" x 9" gray floor tile and mastic
- FT 12 9" x 9" medium brown floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM these materials should be included in an O&M Program.

17.2.3 Material Assumed To Contain Asbestos

Two homogeneous areas, the tar and felt roofing material and vibration cloth, are assumed to be ACM. No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

17.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following material, originally identified in the walkthrough survey as suspect ACM, was examined more closely and reclassified as nonsuspect:

• CT 4 2' x 4' fiberglass ceiling tile

No bulk samples of this material were collected, and it was deleted as a homogeneous sample area from the final survey data.

17.4 AREAS NOT ACCESSED

All areas in Building 17 were accessed.

17.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
17		320 LF PI	

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

17.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 17-A	ACM Survey Results
Appendix 17-B	Assessments/Recommendations for Friable ACM
Appendix 17-C	Building Drawings
Appendix 17-D	Walkthrough Survey Data Sheets
Appendix 17-E	Laboratory Certificate of Analysis
Appendix 17-F	Sample Chain-of-Custody Forms

APPENDIX 17-A ACM SURVEY RESULTS

ACM Survey Results for Building 17

	Material I	Material Description				Quantity	tity			
	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
Ië	Misc.	Tar and felt	Roof	Non	poog	17600	SF	Assume ACM	Assume ACM	
Ë	Misc.	Vibration cloth	On duct to office in refrigerator room See Drawing 17-PL	c N	poog	ო	r.	Assume ACM	Assume ACM	
TSI		Premolded pipe insulation	Two pipes run on west side of east wing See Drawing 17-PL	High	Poor	320	ц.	600	2-5% Chrysotile 30-35% Amosite	3"-6" pipe diameter with insulation. Pipes run above ceiling tile in office areas; in mechanical room pipes are exposed and insulation is badly damaged.
Ę	Misc.	Cement siding	Under aluminum siding	No.	Unknown	0009	R.	090	15-20% Chrysotile 15-20% Amosite 35-40% Chrysotile	Material is covered by aluminum siding making it difficult to assess condition.
≒	Misc.	Ceiling tile	See Drawing 17-CT	coN	Good	2550	R.	103	None detected	CT 1 12" x 12" white w/random holes
'5	Misc.	Ceiling tile	See Drawing 17-CT	c 0 2	р 0 0	240	π.	072 079	None detected	CT 2 12" x 12" white w/uniform holes

Woodward-Clyde Federal Services July 3, 1991

D:\ASBESTOS/B17.asb

ACM Survey Results Building 17 (continued)

Homogen- Category eous (surfacing Sample TSI or Area misc.) #						taging.			
	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
	Ceiling tile	See Drawing 17-CT	Non	Good	2800	SF	066 092	None detected None detected	CT 3 2' x 4' white w/fissures
8 Misc.	Ceiling tile	See Drawing 17-CT	Non	Poo 9	240	S.	073 108	None detected None detected	CT 5 2' x 4' white w/very small random holes
Wisc.	Ceiling tile	See Drawing 17-CT	Nov	Good	1400	r.	089 094 095	None detected None detected None detected	CT 6 12" x 12" white w/fissures Sample 095 is a QC for sample 089.
10 Misc.	Ceiling tile	See Drawing 17-CT	Noo	Good	280	RS.	105	None detected None detected	CT 7 2' x 2' white w/fissures
11 Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	5200	SF	065 075	1-5% Chrysotile 1-5% Chrysotile	FT 1 9" x 9" dark brown floor tile
12 Misc.	Floor tile & mastic	See Drawing 17-FT	Non	Good	10	SF	096 100	5-10% Chrysotile 5-10% Chrysotile	FT 2.9" \times 9" red brown replacement floor tile
13 Misc.	Floor tile & mastic	See Drawing 17-FT	Non	PooD	3200	SF	071 074	5-10% Chrysotile 1-5% Chrysotile	FT 3 12" x 12" white, marbled floor tile
14 Misc.	Floor tile & mastic	See Drawing 17.FT	NoN	poog	10	n.	8 6 0 8 6 0	None detected	FT 4 12" x 12" white marbled, replacement floor tile

ACM Survey Results . Building 17 (continued)

T	I							
	Comments	FT 5 12" x 12" light brown w/spots, replacement floor tile	FT 6 9" x 9" black floor tile	FT 7 9" x 9" tan w/brown streaks floor tile Sample 87 is a QC for sample 86.	FT 8 12" x 12" light brown floor tile	FT 9 9" x 9" tan floor tile	FT 10 9" x 9" red floor tile	
	Sample Results (% and type of asbestos)	1-5% Chrysotile 1-5% Chrysotile	5-10% Chrysotile 5-10% Chrysotile	15-20% Chrysotile 15-20% Chrysotile 10-15% Chrysotile	<1% Chrysotile	10-15% Chrysotile 1-5% Chrysotile	1-5% Chrysotile 1-5% Chrysotile	
	Sample #	090 091	063	082 086 087	067	080	078 083	
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	R	R.	R F	R.	J.S.	
Quantity	Estimated Amount	က	160	009	006	140	140	
	Condition (Good, Fair, or Poor)	Bood	Good	goog	Good	Good	Good	
	Friability (Non, Low, Mod. or High)	Non	Non	c o N	Non	Non	Non	
	Location (where material is found)	See Drawing 17-FT	See Drawing 17-FT	See Drawing 17-FT	See Drawing 17-FT	See Drawing 17-FT	See Drawing 17-FT	
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Misc.	Misc.	Misc.	
	Homogen- eous Sample Area	15	9	17	18	<u>6</u>	50	



ACM Survey Results E. Building 17 (continued)

	Comments	FT 11 9" x 9" gray floor tile	FT 12 12" x 12" medium brown floor tile	Sample 085 is a QC for sample 084,
	Sample Results (% and type of asbestos)	1-5% Chrysotile 1-5% Chrysotile	1-5% Chrysotile 1-5% Chrysotile	None detected None detected None detected None detected None detected Annone detected None detected Annone detected Annone detected
	Sample #	069 070	062	076 077 084 085 093 101 102
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	SF	R.
Quantity	Estimated Amount	140	1600	31500
	Condition. (Good, Fair, or Poor)	, poo5	Poo S	роод
	Friability (Non, Low, Mod. or High)	Non	r o N	Non
	Location (where material is found)	See Drawing 17-FT	See Drawing 17-FT	Walls: throughout building Cellings: See Drawing 17-CT
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Gypsum board
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Surfacing
	Homogen- eous Sample Area	21	22	23

APPENDIX 17-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Friable ACM Assessment/Revommendation for Building 17.

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	۵
	Exposure Factor	6
	Damage/Risk Factor	<u>π</u>
Material Description	Type (e.g. pipe fitting insulation)	Premolded pipe insulation
Materie	Category (surfacing TSI or misc.)	<u>₹</u>
	Homogen- eous Sample Area	м
	Functional Space	17.1

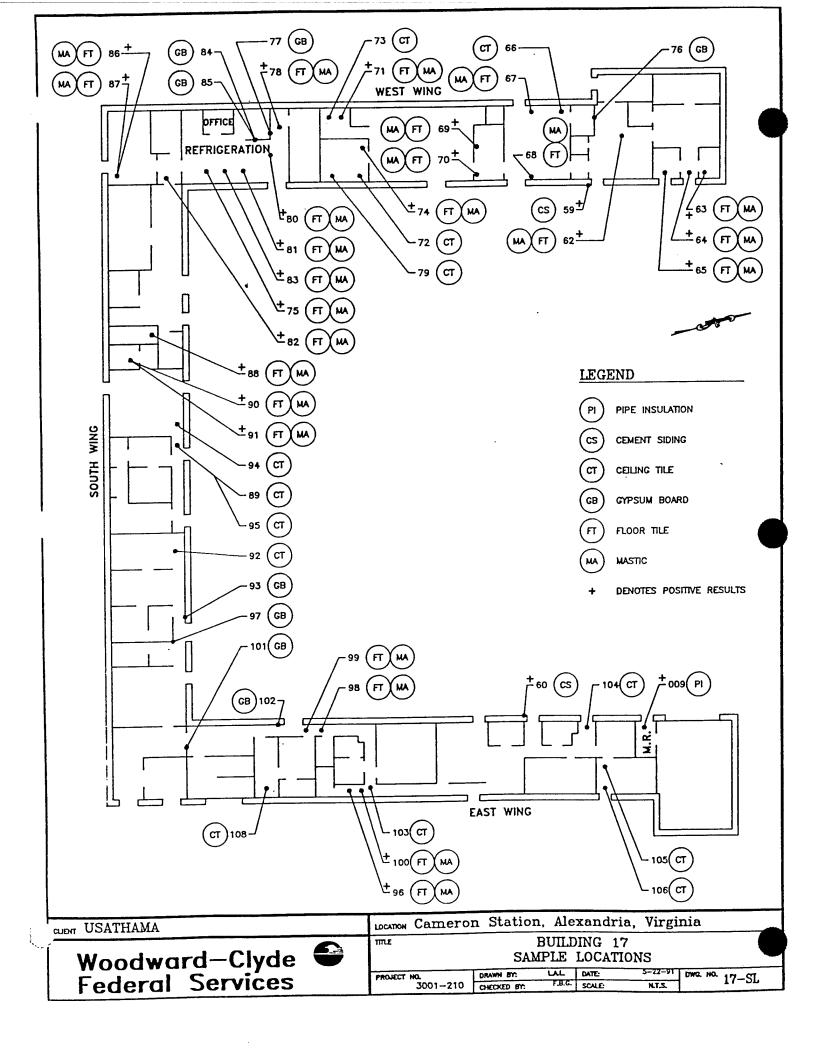
"ameron Station	Building /7 Inspector	Inspector/Date Laraes (SMardin 1/25/41)
Homogeneous Sample Area #(s)	~	Material Type(s) Paguelded graph insulation
Functional Space	17-1 Overheal and along last wing	
	Part 1: Damage/Risk	
 Visible evidence of physical damage: 	(5) High; 4 Moderate; 2 Low; 1 Minimal; 0	None
 Water damage: 	3 Yes; ONo	
 Proximity of material t 	Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)	(maximum score of 3 points.)
A. Sprayed- or trowelled-on:	elled-on: $3 < 1$ ft. or ceiling panel contaminated; $2 \le 1 \le \text{ft} < 5$; $1 \ge 5$ ft;	ft; 0 >5 ft & no routine maintenance
B. Pipe, boiler or duct insulation:	act insulation: (3) Contaminated ceiling panel requires removal; 1 Yes, routine maintenance required;	naintenance required; 0 No routine maintenance
 Type of material (If ar 	Type of material (If area contains several friable materials, score the one with the greatest quantity).	
	0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4	Ceilings/walls
 Potential for Contact b 	Potential for Contact based on material proximity to area occupants:	
A. < 10 ft:	8 High; 5 Medium; 2 Low	
B. > 10 ft:	5 High; (3) Medium; 0 Low Jop. on Mech Rom.	
Asbestos content: Use	Asbestos content: Use percentage for material with highest probability for becoming airborne:	
	1 1< $\% \le 30$; (3) 30 < $\% \le 50$; 5 > 50%; NO HAZARD Sample	Samples contain no asbestos
 Sample Numbers: 	0.9	
	Damage/Risk Total	

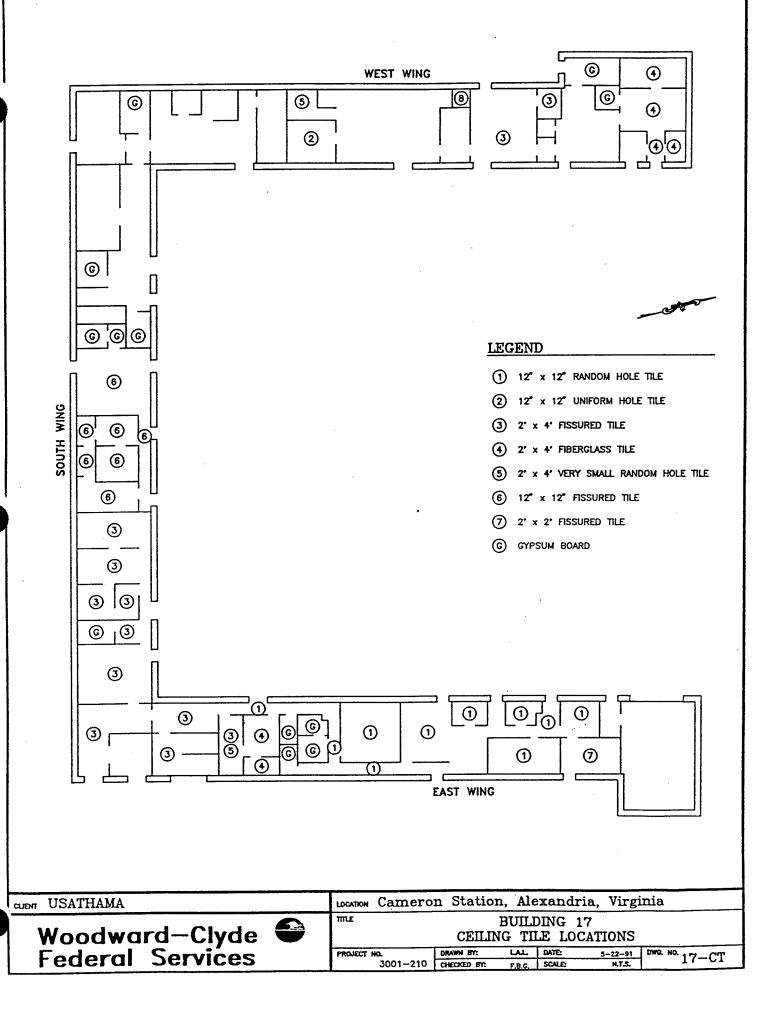
Woodward-Clyde Federal Servic

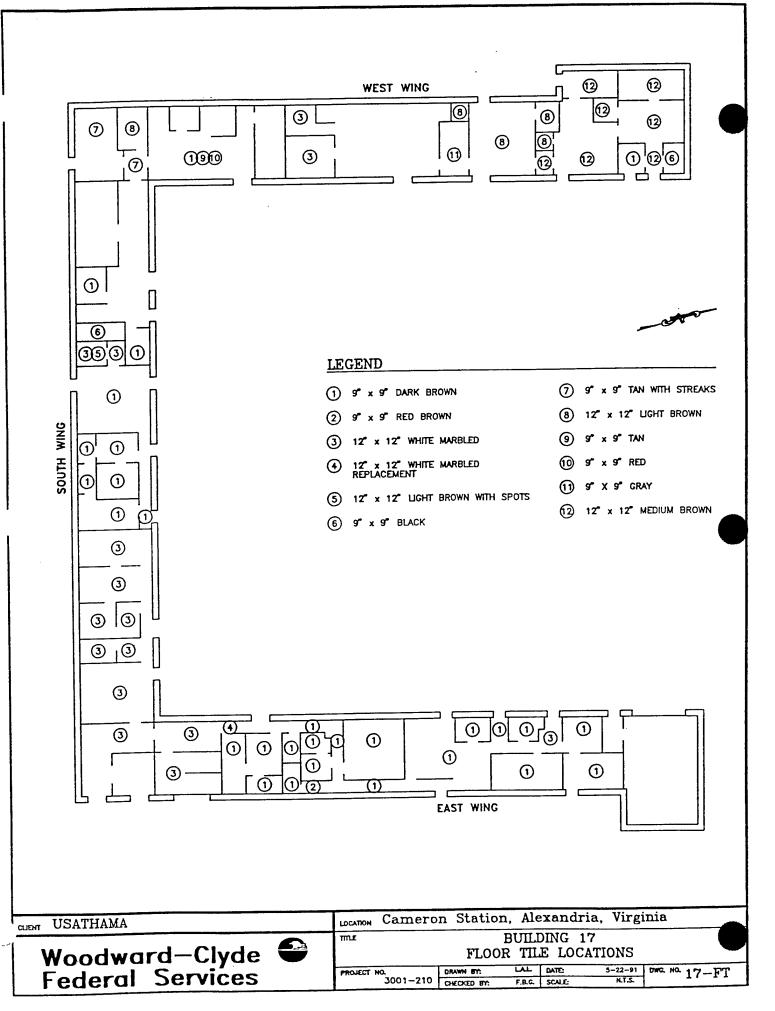
\ :
Inspector/Date CALACO (1001/101/101/101/101/101/101/101/101/10
mole Ar
Thingsings and the face alon East Win.
• Friability: (6) High; 3 Moderate; 1 Low
• Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $(1) 10 \le \text{ft}^2 < 100$; $2 100 \le \text{ft}^2 < 1000$; $3 \ge 1000 \text{ ft}_2$
• Surface Material: (If more than one material, score roughest; score exposed materials as 'rough'.)
A Rough; 3 Pitted; 2 Moderate; 1 Smooth
• Ventilation: (Mark all categories that apply; maximum of 7 points.)
5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above
• <u>Air Movement</u> : 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream; 0 No perceptible air flow in area
to forces such as vibration, water or steam acting on material.)
5 High (constant vibration); (2) Medium (occasional vibration); 0 Low Ly 'n Mch Per
• Floor: 4 Carpet; 2 Seamed or rough surface; 1 Smooth surface; 0-4 Unique situation (e.g., dirt floor)
• <u>Barriers</u> : (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
A. Sprayed- or trowelled-on ceiling or walls
1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire; 4 None
B. Pipe, boiler, duct or other material - percent of total exposed and visible to occupants
$4/2$ 25%; 2 25 < % \leq 50; 3 50 < % \leq 75; 4 75 < % \leq 100
• Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$ $4 \cdot 501 \le \text{pop} \le 1000$; $5 > 1001$ or medical/youth centers/residential
Exposure Total / 9 Exposure Total / 9 Woodward-Clyde Federal Services

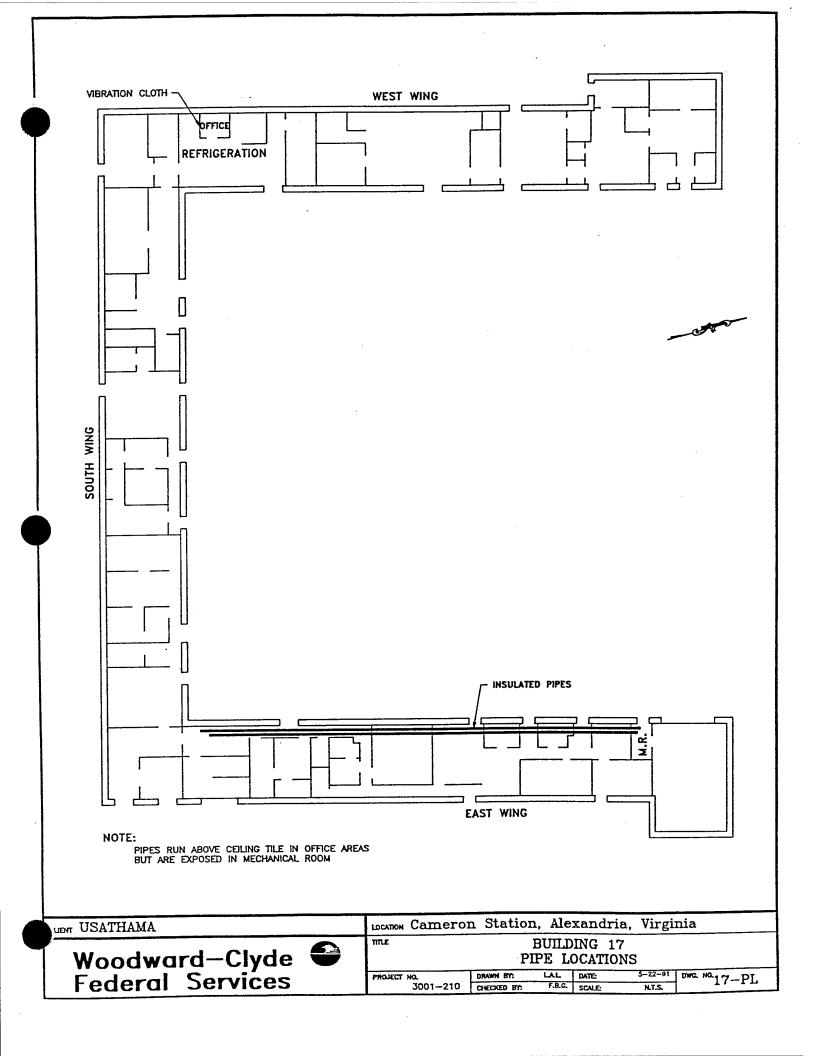
November 19, 1990

APPENDIX 17-C BUILDING DRAWINGS









APPENDIX 17-D WALKTHROUGH SURVEY DATA SHEETS

Walkthrough Survey a Sheet 1 of	Inspector Date 11/14/90	Shingle Asphalt Shingle	SF	Fiberglass Panel	SP	Location					Steel Column	SF	SF		SF
	EXTERIOR	Asbestos Cement Shingle	Quantity 6 000	Steel Panel	Quantity	Quantity				STRUCTURAL	Wood Columns A	Quantity	Quantity	Firedoor 🔲	Quantity
	ers	□ poom	Soffit \(\text{Soffit} \)	}	Condition G F P	Condition	G G G	G F P	G F P		Steel Joists/Beams 🔲 Woo	Condition G F P	Condition G F P	Masonry角	Condition G F P
Jameron Station	Building 17 Post engineers Office & Of	Steel/Aluminum	Sample (Y) N Commit Shirth Condition	<u>(</u> <u>ě</u>	Sample Y (N)	Exterior Mechanical Systems Sample	Vent pipe	Louvers 时 Y CX A/C Units 的 Y X	Other \square Y N		Wood Joists/Beams ∯ Steel Joi	Sample Y (N)	Sample Y N	Firewalls - Steel 🔲	Sample Y (N)

November 16, 19

ameron Station

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Suilding #/7

•							
	UI #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
	""						
poller							
Breeching	4/4						
Fumace	A/X						
Tanks/Vessels					•		
(n) H(d)		10					
To Tolonbone	1///						
Elec., 1 elephiolic	¥/^/						
Other							
The less	os Chick		Ach 3 200111	Ossume Dem	N	5	~
17.3		gleen					·
,			med Km	Rubburyed Makena	enal N		

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell

Trowelled-on.
 Mud
 Other

ameron Station

Walkthrough Survey I

3 of 4

Sheet

HVAC

uilding #17

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	FNOW 14.366, 40	20						
		3	+: deuglas	700				
Pine	From P.E. SEL. TO FILING & AKINTING	35	prom 2d	2	SOOL	160	7	3.5" W/5"
		35	blo.11 274	458	, 200¢	09/	47	5.5 Was
Fittings								
Other								
		·						
							•	

Trowelled-on
 Mud
 Other

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

4 of 4

Sameron Station

INTERIOR - CEILING/WALLS/FLOORS/MISC.

suilding #17

						Ż		٨.		 any		 		
<u>-</u>	1			1	Ī	$\stackrel{\sim}{\dashv}$		<u> </u>	1					
Quantity	2550 55	240 sf	2800 SF	1030 SF	240 sF	1400 SF	280 SF	1500 SF	-				of every the second	
Condition G F P	٥	0	6	boro Par	9	ک .	Ġ	S)	
Sample Y N	yes			1/4 /	<i>*</i>			Ż	10		No.		1 . 1	
Location .	SEE FIOR PLAN	,				:		7	msuh Oar Z					
Color/Pattern	white random patters	white I uniform pattern	write / fissured	white/smooth	white foury sn., holes	white/fossured	while/ Assured	white	Binn		B white/grey			
Material*	x17" - ahus m	- 12" x12" - chudon	- 2'x 4' - ansumbed	\ \ \	1 2 × 4 ,	- 12" x 17" ghuelon	1	brew. house.	- Phone propart	my Charbian	nailed to underside of 100 boards			

*Naterial	Ceiling	2x4 tile	2x2 tile
	_		

1x1 tile 1x2 tile Plaster Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

4 of 4

ameron Station

INTERIOR - CEILING/WALLS/FLOORS/MISC.

wilding 477

dition Quantity F P	5200 sf	10 5/5	3200 56	10 SF	<i>y</i> ,	160 50	£5 009	A00 SF	140 5F	140 36	140 5%	1600 56		
Sample Condition Y N G F P	2,												,	
Location	SEE FLOOI? YLAN													
Color/Pattern	brown	brown	white marbled	while mudies	Light blown yeak	black	tan When steele	Clark brown	tar	مي	810	1 Jean		·
Material*	1 - 9%9" Drun	(2) - 9x 9 - 6xm (141/2.01/2.01	- 12×12 W	"4- 12×12" (10) accmont)	24 - 12,512 - 2,914 diow , 2015	"1 - 9×9" Black	#7 - 9x9 in w/ brown streaks	B B 12, x12" Link brown	29- 9x9 den	9,49	H 11 - 9x1" 9/24	17 19		

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

APPENDIX 17-E LABORATORY CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001 : 17 Bldg #

Person Submitting: DAVID BARNES : 01/22/91 Date Analyzed Date Sampled

MICROSCOPY LIGHT POLARIZED 户 () SUMMARY

		COMMENT															
	ANALYST	ID**	t d	2	8 8	78	YS	AS	y g	88	y s	3 8	73	SS.	88	y s	S.
		PARTICULATE	00	0/100	60-65	95-99	90-95	95-99	95-99	30-40	100	100	80-84	85-94	90-95	10-15	10-15
YT \$\		OTHER		; ; ;	!	•	i	!	₽	!	1	1	05-10	05-10	∵	!	!
S MATERI	ORGANIC	FIBERS			1	₽	!		!	30-35	7	₽	05-10			85-90	85-90
PIBROUS	PIBROUS	CLASS		!	1 1	!		1		;	-	!		i	:	;	
/ OTHER PIBROUS MATERIAL &/	MINERAL FIBROUS ORGANIC	MOOT		!	} } }	!!!!	1 1	1	!	30-35	!	!	;	!	1	!	:
/ 20 10 10 10 10 10 10 10	ANTHOP-	eyllite		1	:	1	!	1		1	1	1	!	1	1 1		!
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** ANALYST ID CODE (SEE LAST PAGE) N = ASBESTOS NOT OBSERVED COMMENTS: * P - ASBESTOS PRESENT

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.



Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001 : 17 Bldg #

: 02/01/91 Date Analyzed Date Sampled

Person Submitting: DAVID BARNES

MICROSCOPY LHCHT POLARIZED **回** SUMMARY

COMMENT														
ANALYST ID**	88	y s	N S	y s	3 43	SS	SS.	38	AS	AS	A.S.	S¥.	AS	AS
PARTICULATE	95-99	95-99	90-95	90-95	95~99	10-15	85-90	95-99	80-85	95-99	95-99	66-26	80-85	85-90
AL &/	1	1	1	:	₹	!	₽			∵	1	1		1
is materi corganic fibers	₽	4	02-10	05-10	1	85-90	1	1	1	7	01-05	01-05	!	1
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AMOSITE		!		;	1	;	1	!		1	1	1	;	1
CHRYSO- TILE	01-05	01-05	!	1	01-05	1	10-15	01-05	15-20	01-05		1	15-20	10-15
ASBESTOS PRESENT*	P4	ρ	z	z	<u>ρ</u> ,	z	ρ	£.	Д	Ω	×	z	Ω ₁	щ
SAMPLE	74	75	76	7.7	78	79	80	81	82	83	84	82	98	87

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N - ASBESTOS NOT OBSERVED

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Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

Job Site : Cameron Station

: 17

Bldg #

Job Number: 3001

CERTIFICATE OF ANALYSIS

Date Analyzed Date Sampled

: 01/22/91

Person Submitting: DAVID BARNES

: 02/01/91

MICROSCOPY LIGHT POLARIZED <u>Б</u> SUMMARY

COMMENT														
ANALYST ID**	SX	ş	Ş	SS.	S.	AS	S \$	S.	SX.	SZ.	S¥.	SS.	УЗ	æ
PARTICULATE	90-95	10-15	95-99	95-99	25-35	85-90	10-15	10-15	90-95	80-85	100	100	90-95	100
AL */ : OTHER		}	1	1	!		1		1	!	!		₽	
OTHER FIBROUS MATERI. MINERAL FIBROUS ORGANIC WOOL GLASS. FIBERS	1 1 1	85-90	1	;	10-15	10-15	85-90	85-90	1	15-20	₽	₽	!	₹
R FIBROUS GLASS.				1		!		1	1	-				
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC WOOL GLASS. FIBERS OTHER	1 1 5 8		!	1 1 1	55-60	₹	1	1	1	7	1 1	1	1	}
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AMOSITE	i	1		1		1		1	1	1	!		1	1
/ CHRYSO-	_	1	01-05	01-05					05-10	1		!	05-10	7
ASBESTOS PRESENT*	ρ,	×	ρι	ρι	z	z	z	z	ρ,	z	z	z	Δ	Ω ₄
SAMPLE	88	89	06	91	92	93	94	95	96	97	86	66	100	101

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

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Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

: Cameron Station Job Number: 3001 : 17 Job Site Bldg #

Person Submitting: DAVID BARNES : 01/22/91 : 02/01/91 Date Analyzed Date Sampled

MICROSCOPY LIGHT POLARIZED 日日 SUMMARY

	COMMENT						
	ANALYST ID**	AS	SS	Ş	AS	SS.	AS
	PARTICULATE	85-90	10-15	10-15	15-25	20-30	30-35
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/ OTHER FIBROUS MATERIAL &/	MINERAL	1 1 1	1	1	55-60	50-55	65-70
/	Anteop- hyllite	!			!	!	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
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	AMOSITE		1	; ; ;	1		
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	ASBESTOS CHRYSO- PRESENT* TILE 1	z	z	×	z	z	z
	SAMPLE ID	102	103	104	105	106	108

** ANALYST ID CODE (SEE SIGNATURE)

N - ASBESTOS NOT OBSERVED

COMMENTS: * P = ASBESTOS PRESENT

4 PAGE(B) LAST PAGE OF

Samples Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bylk Insulation

(AS) Andreas Saldivar This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the publicity these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

DYNAMAC CORPORATION LABOR	
	DYNAMAC LAB NUMBER 11-90-653
REPORT SUBMITTED TO:	REPORT PREPARED BY:
WOODWARD CLYDE FEDERAL SERVICE ONE CHURCH ST. SUITE 404 ROCKVILLE MD 20850	DYNAMAC CORPORATION 11140 ROCKVILLE PIKE ROCKVILLE, MD 20852
ATTENTION: SALLY GUARDIA	CONTACT: RICK SANDER
WORK ORDER NUMBER: 3001-210	
PROJECT NAME: CAMERON STATION	
PROJECT CODE:	
NUMBER OF SAMPLES RECEIVED:1	DATE RECEIVED: 11/19/90
TYPE OF ANALYSIS: PLM	
1.) BULK ASBESTOS ANALYSIS IS PERFORM (PLM) IN CONJUNCTION WITH DISPERSE EPA "INTERIM METHOD FOR THE DETER INSULATION SAMPLES".	SION STAINING. ACCORDING TO THE US
2.) THE ANALYTICAL RESULTS CONTAINED SPECIFIC SAMPLES AS RECEIVED FROM FROM THESE RESULTS IS SOLELY THE	I THE CLIENT, AND ANY EXTRAPOLATION
3.) THE PERCENTAGES REPORTED ARE AREA AS PROBABLE RANGES.	A ESTIMATES ONLY AND ARE EXPRESSED
4.) THIS TEST REPORT MUST NOT BE REPRAPPROVAL FROM THIS LABORATORY.	RODUCED EXCEPT IN FULL AND WITH
COMMENTS:	
CERTIFIED BY:	HUGON FICK LABORATORY MANAGER

DYNAMAC CORPORATION LABORATORY RESULTS SUMMARY OF RESULTS DYNAMAC LAB NUMBER: 11-90-653

3	I IT SAMPLE NUMBER.	TYPE OF ASBESTOS DETECTED	PERCENT ASBESTOS
-			
)	09	CHRYSOTILE AMOSITE	2-5 30-35

DYNAMAC CORPORATION TEST REPORT COMPLETE RESULTS BY SAMPLE DYNAMAC LAB NUMBER:11-90-653

TAMPLE DATA	BULK ASBESTOS RESULTS	
SAMPLE NUMBER: 009	ASBESTOS	PERCENT
FRACTION #: 01B DATE ANALYZED:11/19/90 ANALYST: RICK SANDER VERIFIED: RICK SANDER	CHRYSOTILE AMOSITE	2-5 30-35
SAMPLE DESCRIPTION: WHITE FIBROUS MATERIAL	NONASBESTOS	PERCENT
	CELLULOSE NONASBESTOS, NONFIBROUS	2-5 50-55
COMMENTS:		

APPENDIX 17-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project 3001 Installation (2): Ct Sample Program (3): BEI Laboratory (2): PC

COC By: DIMIB Initials

Field Office:

Woodward— Federal Services c/o Charles brummett ECA, RRMO, Bldg. 17 Caneron Stution Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MO 20850 (301) 309-0800

Admin. Office:

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White: Rece Lab Yellow: WCFS Chemist Pink: Return to WCFS after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

Woodward-Cly :ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIMIB Initials

BUDG 17

Sample Date: 01 12 391

Field Office:

Woods & Federal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Cameron Station Aexandria, VA (703) 274-6548

Admin. Office:

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

WCFS Field Sampler	Time of Sampling (Military	Site 1D (10)	WCFS Field Sample ID (R)	File Type (3)	Site [7ype (4)	Depth Ft. (5)	NON-ICT bear OCP/PCBs (gc/ms) SVOC SVOC SVOC	сии ТРНС (IR)	cr 20+	NIN NOT	Asbest	TCDD Wipe	(36) OHAT		ensolution to 19
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Woodward-Clyde :ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

Woodward e Federal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Comeron Station Alexandria, VA (703) 274-6548 Woodward—Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309—0800

Admin. Office:

Field Office:

COC By: DIMIB.

Sample Date:	19100 MM	BLDG 17	<u> </u>					·		İ	}		ŀ	_ [15 (10c	0080-806 (106)	
WCFS Field Sampler	Time of Sampling (Military	Site 10 (10)	WCFS Field Sample	File Type (3)	Site Type (4)	Depth Ft. (5)	DOS/PCBs (9c/ec) DOS/PCBs (9c/ec) DOS/PCBs (9c/ms) DOS/PCBs (9c/ms) DOS/PCBs (9c/ms) DOS/PCBs (9c/ec) DOS/PCBs (9	NON-TCL Pest	CJA IVT Metals	(я) энат	CT 20+	ИП	จ บวา	Asbest TCDD	PCB Wipe	(36) OHdI	ensoniotnoO to
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Woodward-Clyd ederal Services

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Field Office:

Woodwer Control Services c/o Charles Brummett EACA, RPMO, Bidg. 17 Comeron Stelan Alexandria, VA (703) 274-6548

Woodward—Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309—0800

Admin. Office:

COC By: DIMIB

Sample Date: Ollissil41.	12 CE 10	8 LDG 17	+1								Ì	ŀ	 		İ		ŀ	1	-	200 - 500 (100)			Γ
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Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

3001

Installation (2): CM Sample Program (3): BEI Laboratory (2): PC WCFS Project No.

COC By: Dimitals

Field Office:

Woodward , Federal Services c/o Charles Brummett EACA, RPMG, Bldg. 17 Cameron Station Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

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Ξ	Site WCFS File Site Depth (3) (4) (5) (5)	O O								Time: 1205 Signoture: Mit	Time: (DDD Signature)	
11 00	Site WCFS File Site Depth (3) (4) (5) (5)	O O								dward-Clyde Time: 1.205 Signature: M7 2	1 Inne: 1000 Signature	
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11 00	Site WCFS File Site Depth (3) (4) (5) (5)	Clock)			ASB 097					Time: 1205 Signoture: Mit	1 Inne: 1000 Signature	nts:

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

ederal Services Woodward-Cly

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIMIB.

8100 17

Sample Date: Of 1324 91

FB6

F36

Field Office:

Wood e Federal Services c/o Chans, drummett EACA, RPMO, Bldg. 17 Cameron Stellon Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Total Number of Contoiners Number of Contoiners (ag) SHGT PCB Wipe 1000 Asbest ਪਹਾ 12:05 Signatures Signature: ШN CT +05 (яі) энет KU04 1402 CJA Ĭ, NON-TCL Pest Accepted by: Woodward-Clyde (20/26) \$334/400 0CP/PCBs (gc/ms) UMO6 UMO6 UMO6 SVOC OOA | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | Comments: Accepted by: Date: Depth Fr. (5) Signoture: 105 40 108 WCFS Field Sample ID (8) 106 63 102 (CCC) Signature: ASB 108 ASB 105 458 106 ASB 103 45B 104 ASB 102 Time: 10205 Site (10) Time: Relinquished by: Woodward-Clyde Relinquished by: Pose Lob, Inc. Time of Sampling (Military Clock) (4) 3-29-91 12/201 WCFS Field Sampler Initials (3)

1.136

FB6

F36

F136

Comments:



OPTICAL MICROSCOPY LAB

Page ___ of /

)

CHAIN OF CUSTODY/SAMPLE SUBMITTAL

Reports to: Company Address Address Address Address Altention: Phone Invoice to: Comman Comm	Time delay function and part a	Received by Date/Time Date	Charge No. 300/-2/0 Total No. of Samples Collected by Analysis Type Requested Written Comments	Cassette Scription/Location Time On Time Otl Flow Rate Volume Special Instructions	1) Michem Cad room		
	Jedus Macis	o 800 of Clark Gelland Low red, St. Sent. 704 mo 20850	2	Description/Location	Mechanicol		

6/83

BUILDING 20

20.1 DESCRIPTION

Building 20, the Four Seasons store managed by AAFES, is a relatively new structure at Cameron Station. Constructed in the early 1980s, it has steel columns and beams and a flat steel panel roof. The interior, which is subdivided into the main store area, a warehouse, garden shop, office space, restrooms, and a utility room, has only one type of ceiling tile and floor tile throughout. Building 20 is heated by electricity. No steam lines enter the building.

20.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 20-A,C,E, and F. A summary of this data is presented below.

20.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 20.

20.2.2 Suspect Nonfriable ACM

Three homogeneous areas of suspect nonfriable ACM were identified and twelve bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these three materials.

20.2.3 Material Assumed To Contain Asbestos

No materials in Building 20 were assumed to be ACM.

20.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

20.4 AREAS NOT ACCESSED

All areas in Building 20 were accessed.

20.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

20.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 20-A

ACM Survey Results

Appendix 20-C

Building Drawings

Appendix 20-E

Laboratory Certificate of Analysis

Appendix 20-F

Sample Chain of Custody Forms

Appendices B and D are not applicable to this building report.

APPENDIX 20-A ACM SURVEY RESULTS

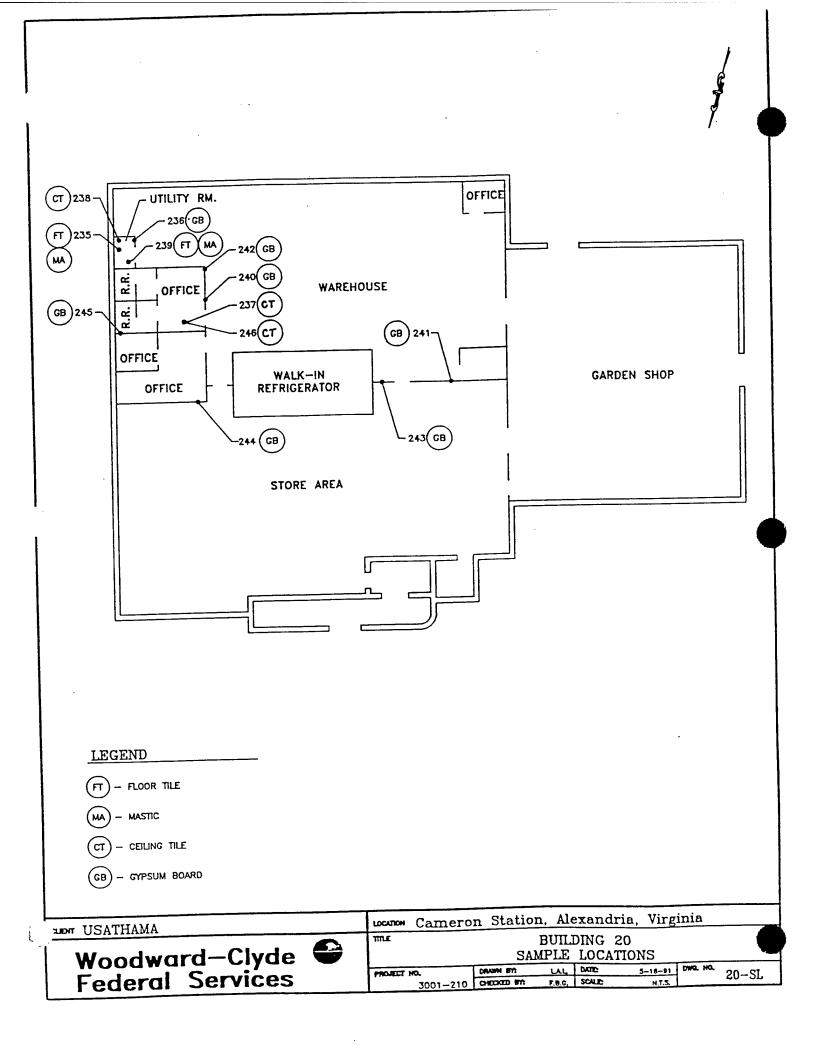
ACM Survey Results for Building 20

	Comments	2' x 4' white w/fissures Sample 246 is a QC for Sample 237.	12" x 12" white floor tile	
	Sample Results (% and type of asbestos)	None detected None detected None detected	None detected None detected	None detected None detected None detected None detected None detected None detected None detected
	Sample #	238 237 246	235 239	236 240 241 2443 2443 5
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	и п	r.	ι.
Quantity	Estimated Amount	8600	8700	10000
	Condition (Good, Fair, or Poor)	D000	900g	Good
	Friability (Non, Low, Mod. or High)	Non	Non	Non
	Location (where material is found)	Main store, offices, restrooms & utility room	Main store, offices, restrooms & utility room	Walls: main store, offices, restrooms & utility room Ceiling: restroom
Material Description	Type (e.g., pipe insulation; floor tile)	Ceiling tile	Floor tile & mastic	Gypsum board
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Surfacing
	Homogen- eous Sample Area	-	7	က

Woodward-Clyde Federal Services July 3, 1991

D:\ASBESTOS/B20.asb

APPENDIX 20-C BUILDING DRAWINGS



APPENDIX 20-D WALKTHROUGH SURVEY DATA SHEETS

ameron Station			Walkthrough Survey Sheet 1 of 2
uilding #20 ADF25	exchange	EXTERIOR	Guardia Barnio
xterior Siding			
.fasonry 国 Steel/Al	Steel/Aluminum Wood	Asbestos Cement Shingle	Asphalt Shingle
Other 🗖	Soffit □		
sample Y (N)	Condition (G) F P	Quantity	SF
<u>}oo</u> Į			
Shingle (asphalt/fiberglass)	Tar & Felt Steel P	Steel Panel 🗹 Fiberglass Panel 🛘	Other 🗆
Sample Y (N)	Condition (G) F P	Quantity	SF
Exterior Mechanical Systems			
	<u>Sample</u> Condition	Quantity	Location
Vent pipe	YNGFP		
Chimney	Y N G F P		
Louvers	Y N G F P		
A/C Units	Y N G F P		
Other	Y N G F P		
		STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	Wood Columns □ Steel Column 🗗	Concrete Column
Sample Y (N)	Condition (G) F P	Quantity	SF
Sample Y (N)	Condition G F P	Quantity	SF
Firewalls - Steel	Masonry 🗆	Firedoor	
Sample Y	Condition G F P	lity	SF

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Walkthrough Surv

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Sheet

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

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	QI #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching						J	
Furnace							
Tanks/Vessels			,				
Elec./Telephone							
12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Ŋ	/				
(D): 37:0 FOT 0-170:							
							•
Other							

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberells

5. Trowelled-on6. Mud7. Other

Walkthrough Survey

HVAC

ameron Station

	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct	Through out Bldg.	00						
								-
Pipe	mit to milkin	Sar.	Lienelus S	02.2				
	regularativ		\					
Fittings								
Other								
								·

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fibergla

Trowelled-on
 Mud
 Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

uilding 120 MARES

Quantity	~ 8600 se	~ &700 SF	~ 10000 sp					
Condition G F P	poor	poor	Jeog .					
Sample Y N	yes	37	788					
Location	main store & collects	Main Start & Offices	Make Shire & offices					٠
Color/Pattem	while/fissured	white	sainted					
Material*	sixt ceiling tile	12"x12" floor Tile	Bustin Bowel					

*Material	Ceiling	2x4 tile	2x2 tile	1x1 tile	1x2 tile	Plaster

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

APPENDIX 20-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

. His effective and afficient policy of concentrations and satisfies. Woodward-Clyde Federal Services

Y

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 20
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91
Date Analyzed : 02/14/91

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED E O SUMMARY

		COMMENT							*					
	ANALYST	ID**	႘	ខ្ល	႘	ខ្ល	႘	ပ္မ	ઇ	8	ន	ខ្ល	႘	ပ္ပ
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S MATERI	MINERAL FIBROUS ORGANIC	FIBERS	₹	10-15	30-35	30-35	7	10-15	10-15	30-35	35-40	35-40	.	30-35
R FIBROU	FIBROUS	GLASS			30-40	30-40	7	7	-	!	}	1	01-05	35-45
/ OTHER FIBROUS MATERIAL &/	MINERAL	MOOT		•	!	į	1	1	1	1	i	1	1	
/	- doeth	HYLLITS	1 1 1 1	}	1	!	1 1 1	1	1 1 1 1 1 1 1	1	!	1 1 1		-
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OS 6	TREMO-	LITE		1	1	1	1	1		!	!	!	;	
/ ASBESTOS	CROCIDO-	LITE	;	1	1	1	1	1 1		1	!	!	1	
		MOSITE	! ! !		1		1			1	!		;	
//	CHRYSO-	TILE AMOSITE		1		\$ 1 1		-	1	!	1	1		
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	SAMPLE	a	. 31.0	236	237	238	239	240	241	242	243	244	245	246

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE SIGNATURE)

N - ASBESTOS NOT OBSERVED

OBSERVED

1 PAGE(8)

LAST PAGE OF

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (GC

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.



APPENDIX 20-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde

WCFS Project 3001

8

Installation (2): CM Sample Program (3): Laboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES eral Services

COC By: DIMIB

Field Office: Woodward Federal Building 1. Door 2 Cameron Station Alexandria, VA 22304 703 617—7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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	Potenone	элан								Servic Time:	
	Herbicides									ANA Analytical Services, Inc.	
(3:	(907/PCBs (gc/e	LH19								\$	
	Pest Pest	90MJ								30	
	SAOC	90MJ								101	
	VOC	SOMU								\$ 6.9 8 6.9	,
F	TEST NAME	CODE Sample								Accepted by:	9
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	Site Type (4)									*	tyle
	File Type (3)									W. Bans	gest feet
	WCFS Field Sample	<u>(8)</u>	235	236	237	238	239	340	241	nature: 1	Mar
	Site ID (10)		458030	97302B	458030	0€08st/	JK6030	436030	Orasp	Woodward-Clyde Federal Services	1200 2
	Time of Sampling (Military	(4) (4)							,	by: Woodward-	14-28-41
	WCFS Field Sampler	Initials (3)	136	ja,	188	636	188	Pai	E.	Relinquished by: Wo	Comments:

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Pink: WCFS Project File

Gold: WCFS Project Scientis-

Federal Services

O E

3001 WCFS Projec

8

Installation (2): CM Sample Program (3): Laboratory (2):

Woodward-Clyde Jeral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIMIR

Federal Services Field Office: Woodwy
Building
Boor 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office:

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

	2000							(39/3	<u> </u>		s	<u> </u>		_					91			
	Site ID (10)	WCFS Field Sample	File Type (3)	Site Type (4)	Depth Ft. (5)	TEST NAME TO Code (1 TEST NAME	2AOC	Pest Pest (20) #809\90)	Herbicides	Rotenone	TAL Metal:	CAN	(원) 2H역T SO4	СГ	ПИ	ี่ขวา	Asbest		bc8 Mib		1	r of Contain
		(8)				Sample	LM05	UMO6	61HJ	элчн	\$122	E418'1 KA04 LA02	1.81+3			ILCIWS	COCCINE	0628WS	61HI	ļ		
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	458020	243															7					
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)			2																	

BUILDING 21

21.1 DESCRIPTION

Building 21, the Boiler House, is a masonry structure with a flat tar, felt and gravel roof. It contains six insulated boilers, which supply steam to heat the major buildings throughout Cameron Station. The boilers originally coal-fired, now use fuel oil. All pipes, including those leading from the outside fuel tanks and to installation buildings are insulated.

21.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 21-A through 21-F. A summary of this data is presented below.

21.2.1 Suspect Friable ACM

Thirteen homogeneous areas of suspect friable ACM were identified and forty-three bulk samples, including three QC samples, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following eleven materials:

- Trowelled-on insulation, Boiler #5
- Trowelled-on insulation, Boilers #1 and 2
- Trowelled-on insulation, breech, Boilers #5 and 6
- Blanket insulation, breech, Boilers #1, 2, 3, and 4
- Premolded pipe insulation, 8" high pressure steam line
- Premolded pipe insulation, 14" high pressure steam line
- Premolded pipe insulation, 4" high pressure steam line between boilers at south end
- Premolded pipe insulation, fuel lines from fuel pump to boilers
- Premolded pipe insulation, feed water line in sump area
- Corrugated paper pipe insulation, domestic hot water line
- Premolded pipe insulation, lines outside building leading to fuel tanks

Assessment of ten of these materials, which are located in one functional space within the Boiler House indicates a damage factor of 15 and an exposure factor of 24. According to the GAHA Index, these materials rank as Priority B.

No assessment of the remaining material, pipe insulation outside the Boiler House was made using the GAHA Index. However, it should be scheduled for corrective action at the same time as ACM inside the building.

21.2.2 Suspect Nonfriable ACM

Four homogeneous areas of suspect nonfriable ACM were identified and nine bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material:

• 9" x 9" brown floor tile and mastic

No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

21.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However as ACM it should be included in an O&M Program.

21.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

21.4 AREAS NOT ACCESSED

All areas in Building 21 were accessed.

21.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
21		2774 SF TSI 651 LF PI	

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

21.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 21-A	ACM Survey Results
Appendix 21-B	Assessments/Recommendations for Friable ACM
Appendix 21-C	Building Drawings
Appendix 21-D	Walkthrough Survey Data Sheets
Appendix 21-E	Laboratory Certificate of Analysis
Appendix 21-F	Sample Chain-of-Custody Forms

APPENDIX 21-A ACM SURVEY RESULTS

ACM Survey Results for Building 21

	Material	Material Description				Quantity	tity			
Homogen- eous Sample Area #	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
	Misc.	Tar and felt	Roof	Non	Good	6200	SF	Assume ACM	Assume ACM	
	TSI	Trowelled-on insulation	Boiler #5	Low	Fair	200	R	017	10-15% Chrysotile 15-20% Amosite	
	TSI	Trowelled-on insulation	Boiler #6	Low	Fair	200	S.	018 757 758	< 1% Amosite None detected None detected	
	TSI	Trowelled-on insulation	Boilers #3 and 4	Low	Fair	1000	π π	047 048 761 762 763	None detected None detected None detected None detected None detected None detected	
	TSI	Trowelled-on insulation	Boilers #1 and 2	Lo w	Fair	1000	ι π	049	35-40% Chrysotile 1-5% Amosite <1% Chrysotile 25-30% Amosite	
	īS	Trowelled-on insulation	Breech on Boilers #5 and 6	Low	Fair	224	π	019 020 755 756	30-35% Chrysotile 5-10% Amosite <1% Chrysotile 25-30% Chrysotile 15-20% Amosite 20-25% Chrysotile 20-25% Amosite	

Woodward-Clyde Federal Services July 3, 1991

	1				
	Comments				Sample 44 is a QC for sample 41.
	Sample Results (% and type of asbestos)	30-35% Chrysotile 10-15% Amosite 25-30% Chrysotile 5-10% Amosite <1% Chrysotile	10-15% Chrysotile 30-35% Amosite 20-25% Chrysotile 15-20% Amosite	30-35% Chrysotile 10-15% Amosite 30-35% Chrysotile 10-15% Amosite 35-40% Chrysotile 5-10% Amosite	 41% Chrysotile 1-5% Chrysotile None Detected None Detected 1-5% Chrysotile 1-5% Chrysotile 1-5% Chrysotile
	Sample #	030	045	037 038 039	025 026 041 044 759 760
tity	Unit of Measure- ment (SF, LF or # of fittings)	<u> </u>	"	r.	۳.
Quantity	Estimated Amount	350	50	200	175
	Condition (Good, Fair, or Poor)	poog	Poog	Poor	Pood
	Friability (Non, Low, Mod. or High)	Low	Low	Low	Mod.
	Location (where material is found)	Fuel lines from fuel pump to boilers along south & east walls	Feed water line in sump area	Lines outside building leading to fuel tanks	Domestic hot water lines west & north walls
Material Description	Type (e.g., pipe insulation; floor tile)	Premolded pipe insulation	Premolded pipe insulation	Premolded pipe insulation	Corrugated paper pipe insulation
Material	Category (surfacing TSI or misc.)	TSI	TSI	TSI	1 8
	Homogen- eous Sample Area	1	12.	13	4

	Comments	FT 1 12" x 12" white w/speckles floor tile	FT 2 12" x 12" brown replacement floor tile	FT 3 9" x 9" brown floor tile	
	Sample Results (% and type of asbestos)	<1% Chrysotile None Detected	None Detected None Detected	1-5% Chrysotile <1% Chrysotile	None Detected None Detected None Detected
	Sample #	57 58	ភ ស ស	28 29	ъ в в Ф Ф
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	SF	R.	R.	π.
Quantity	Estimated Amount	216	84	336	ဖ ဗ ဗ
	Condition (Good, Fair, or Poor)	poog	Good	Poor	poog
	Friability (Non, Low, Mod. or High)	Non	Non	NoN	c N
	Location (where material is found)	Restroom & kitchen	Restroom & kitchen	Lab & Office	Ceilings in lab & office
Material Description	Type (e.g., pipe insulation; floor tile)	Floor tile & mastic	Floor tile & mastic	Floor tile & mastic	Gypsum board
Material	Category (surfacing TSI or misc.)	Misc.	Misc.	Misc.	Surfacing
	Homogen- eous Sample Area	15	. 91	17	. 80

APPENDIX 21-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

	Recommended Management Corrective Action	Action as Soon as Possible - Immediately initiate an O&M Program. May need to limit access to qualified personnel only. Schedule corrective action (often removal) as soon as possible; do not wait for the normal repair and maintenance cycle.
	GAHA Index	ω
	Exposure Factor	24
	Damage/Risk Factor	<u>τ</u>
Material Description	Type (e.g. pipe fitting insulation)	Trowelled-on, blanket, premolded, and corrugated paper pipe insulation
Materia	Category (surfacing TSI or misc.)	1 <u>S</u>
	Homogen- eous Sample Area	2, 5, 6, 7, 8, 9, 10, 11, 11, 11, 11, 11, 11, 11, 11, 11
	Functional Space	21-1

	1/2/2	1111

Inspector/Date Barrico | Colonelis

Homogeneous Sample Area #(s) 4, 5, 6

Building 21

Cameron Station

Functional Space 30, les Adus

constated poper pyr 11 sulation Material Type(s) Trouvelle Lon 6 Troubert

Part 1: Damage/Risk

- (2) Low; 1 Minimal; 4 Moderate; 5 High; Visible evidence of physical damage:

(3) Yes;

Water damage:

- 0 None
- Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.)
- 3 <1 ft. or ceiling panel contaminated; 2 $1 \le ft < 5$; $1 \ge 5$ ft; 0 ≥ 5 ft & no routine maintenance A. Sprayed- or trowelled-on:
- B. Pipe, boiler or duct insulation:
- Type of material (If area contains several friable materials, score the one with the greatest quantity).
- 0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; 4 Ceilings/walls
- Potential for Contact based on material proximity to area occupants:
- 8 High; (5/Medium; 2 Low < 10 ft:
- 5 High; 3 Medium; 0 Low > 10 ft:

æ.

- Asbestos content: Use percentage for material with highest probability for becoming airborne:
- 1 $1 < \% \le 30$; (3) $30 < \% \le 50$; 5 > 50%; NO HAZARD Samples contain no asbestos
- 51, 52 53 54 27 33, 92 21, 24, 40, 43, 23, 24 756 50 19 20 755 Sample Numbers:

30, 31, 32, 45, 46, 25, 26, 41, 44, 759, 760 Damage/Risk Total

Woodward-Clyde Federal Service

Sameron Station Building 2 /	Inspector/Date Barows Coranles
Homogeneous Sample Area #(s) 2, 5, 6, 7, 5' 6, 70, 77, 72, 74	Material Type(s) Tematile for Wanked proportiled
Functional Space 30, Lan Norm	convert the relation between

Part 2: Exposure

- Friability: 6 High; 3 Moderate; (1) Low
- $2 100 \le \text{ft}^2 < 1000;$ Amount of Visible Friable Material: $0 < 10 \text{ ft}^2$; $1 \cdot 10 \le \text{ft}^2 < 100$;

 $(3) \ge 1000 \text{ ft}_2$

- <u>Surface Material</u>: (If more than one material, score roughest; score exposed materials as 'rough'.)
- (4/Rough; 3 Pitted; 2 Moderate; 1 Smooth
- Ventilation: (Mark all categories that apply; maximum of 7 points.)
- 5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (6) None of the above
- Air Movement: (5) Routine turbulent/abrupt air movement; 2 Perceptible/occasional air stream; 0 No perceptible air flow in area
- Activity (Refers to forces such as vibration, water or steam acting on material.)
- 0 Low (5) High (constant vibration); 2 Medium (occasional vibration);

4 Carpet; 2 Seamed or rough surface; (1) Smooth surface;

• Floor:

0-4 Unique situation (e.g., dirt floor)

- Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)
- A. Sprayed- or trowelled-on ceiling or walls
- 1 Suspended ceiling; 2 Encapsulation; 3 Railing or wire;
- B. Pipe, boiler, duct or other material percent of total exposed and visible to occupants
- $1 \le 25\%$; $2 \le 5 < \% \le 50$; $3 \le 0 < \% \le 75$; $4 > 75 < \% \le 100$
- 4 501 ≤ pop ≤ 1000; • Population: $(1) \le 9$ or for corridors; $2 \cdot 10 \le \text{pop} \le 200$; $3 \cdot 201 \le \text{pop} \le 500$

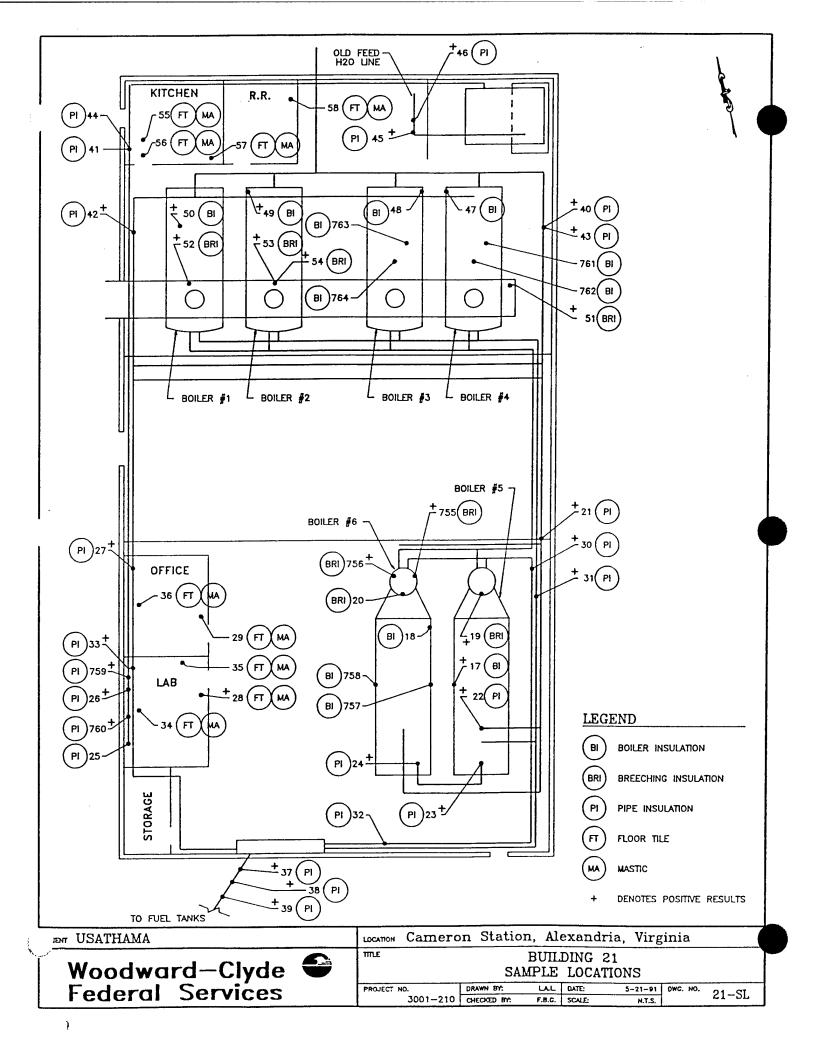
Exposure Total_

Woodward-Clyde Federal Services

5 > 1001 or medical/youth centers/residential

November 19, 1990

APPENDIX 21-C BUILDING DRAWINGS



APPENDIX 21-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Static.				Walkthrough Survey Sheet 1 of 4
Building 21 Bulley House		EXTERIOR	<u>IOR</u>	Inspector Date 9/18/90 Cult fluar la
Exterior Siding				
Masonry Steel/Aluminum □	inum 🗆	Mood □	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	Soffit			
Sample Y (N)	Condition G	F P	Quantity SF	
<u>Roof</u> Shingle (asphalt/fiberglass) □	Down Tar & Felt (4)	Steel Panel	Fiberglass Panel	Other
Sample Y N	Condition G	ሻ	Quantity 6100	SP 5-9 × 105
Mechanical Systems	Sample	Condition	Quantity	Location
Vent pipe 🙀 Y	*	GFP		
Chimney \square	Z	G F P		
Louvers \square	Z	GFP		
A/C Units \square Y	Z	GFP		
Other \square Y	Z	д ч ч		
		SI	STRUCTURAL	/bean
Wood Joists/Beams □ S	Steel Joists/Beams	Wood Columns	Steel Column	Concrete Column/
Sample Y	Condition G	F P	Quantity	SF
Sample Y N	Condition G	F P	Quantity	SF
Firewalls - Steel	Masonry 🗆		Firedoor	
Sample Y N	Condition G	ŗ.	Quantity	R
				Woodward-Clyde Federal Services
D:\USA\CAMSTA\ASBESTOS.SUR				November 16, 199

2 of 4

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Cameron Statio

Building					Inspector/Date:		0
	QI ##	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler	South encl	25	4	Sumther - on	X		22 X 7. 5. 0 20 X 7. 5. 0
	North "		1,	**	,,	``	21 × 7,5 × 4m
							Doors Not
Breeching	Sc. 1.		2	"	"	,,	4x3x8X2X
	Noth	×	,	Slankt	X	, 1	5.5 x 5 x 50
Furnace						-	innit
Tanks/Vessels							
Feel 420 - heat				F. huckaro	N		
Frid y amenter		`_		0 %	N		
Elec./Telephone							
Other -							
when busching	ento beneling			metal flactions	N		
				0			
*Type of Insulation:							

Trowelled-on
 Mud
 Other

Premold
 Blanket
 Aircell
 Fiberglass

Woodward-Clyde Federal Services

3 of 4

eet

HVAC

Cameron Station

Building					Inspector/Date:	r/Date:		·
	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
Hish pressum	Throwhow	>	Fremoly	\ \	Fani	0.81	77	000
', 7	11	`	`	×	,,	202	21	14"
3	Between 60,1000	`		^	5	9%	777	4",
Frut I'm	From fust person to	`	,)	6	350	"	" 0
Fittings								
Leed his	chuns	>		X	5	07	"	% %
23	Outside reading	>	•		Pour	2or	7	
Other	r							
N DHW	west + North	>	Compated	X	d	75	,,	* ^
s Feed No	Santo 8	X	50	N				
	North end							
i stem line	unchargeing the	٨	66	14				
P	ρ η							
1 2								

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

November 19, 1990

D:\USA\CAMSTA\ASBESTOS.SUR

INTERIOR - CEILING/WALLS/FLOORS/MISC.

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		Onantity
	Jaic.	Condition
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	Build	

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Quantity	216	YS	336		334							
Condition G F P	ی	9	DOOK !		٥							
Sample Y N	ン	``	>		×		N	A				
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Color/Pattern	whit w/ specklos	furnilam remad	mony									
Material*	7/ × 1/2	2, //	2 9 X G		Coller Canoun board		" " " " " " " " " " " " " " " " " " "	 101 " " " 100 " 100 m	is a case of the			

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet Woodward-Clyde Federal Services

APPENDIX 21-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

The state of the s Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001 Bldg # : 21

: 02/01/91 : 01/22/91 Date Analyzed Date Sampled

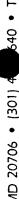
Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED **O**E SUMMARY

	COMMENT														
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AL */	OTHER		!	!	!	!	;	!	!	}		1	1		•
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC	FIBERS		20-25	10-15	7	1	1	₽	₹	80-85	20-60	7	1	7	₹
	GLASS	!	10-15	7	30-35	1	!!!	₽	!		1	~1	}	-	:
	WOOL	!	!		!	1	1	!	1	1	!	!		!	!
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	TILE	10-15	-	30-35	1 >	10-15	25-30	25-30	1	7	01-05	30-35	01-05	₽	30-35
ASBESTOS	PRESENT*	д	ρι	Д	Д	Δ,	д	Δ,	ρι	ρ,	Ω	Д	<u>α</u>	ρι	Δ
SAMPLE	Ω	17	18	19	50	21	22	23	24	25	26	27	28	53	30

** ANALYST ID CODE (SEE LAST PAGE) N = ASBESTOS NOT OBSERVED * P = ASBESTOS PRESENT COMMENTS:

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Woodward-Clyde Federal Services



Church St. Suite 404
Rockville, MD 20850
Attn: Sally Gaurdia

Bldg # : 21

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station Job Number: 3001

Date Sampled : 01/22/91 Date Analyzed : 02/01/91 Person Submitting: DAVID BARNES

MICROSCOPY LHGHL POLARIZED 百〇 SUMMARY

		COMMENT								5-1						
	ANALYST	1D**	ន	မ္မ	႘ွ	႘ၟ	မ္မ	႘ွ	ន	မွ	ខ្ល	ខ្ល	႘	မွ	ဋ	မွ
		PARTICULATE	60-70	60-65	55-65	80-85	80-85	60-65	20-60	50-60	20-60	65-70	15-20	55-60	65-70	20-25
AL 8/		OTHER				1	1			!	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1	1	:	!
S MATERI	MINERAL FIBROUS ORGANIC	FIBERS	. ☆	₽	₽	15-20	15-20	35-40	1	₹	7	01-05	80-85	05-10	05-10	75-80
R FIBROU	FIBROUS	GLASS	1	35-40		₽	1	₽	1	!		}	1	15-20	!	₩.
/ OTHER FIBROUS MATERIAL &/	MINERAL	WOOL	1	1	1		1		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	1	!	1	1	1	1	!
/	- dollin	HYLLITE	1	!	1	:	1	1	1 1 1	-	1	!	!			
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/ ASBESTOS &		AMOSITE LITE LITE OLITE	05-10		20-25				10-15	10-15	05-10	20-25			15-20	

COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N = ASBESTOS NOT OBSERVED

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Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station 1 21 Bldg #

Job Number: 3001

: 02/01/91 : 01/22/91 Date Analyzed Date Sampled

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED O H SUMMARY

	COMMENT														
ANALYST	ID**	ន	ပ္ပ	ខ្ល	ខ្ល	ខ្ល	ខ្ល	ပ္ပ	႘ၟ	ပ္ပ	မွ	မွ	ဗွ	႘	છુ
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	AMOSITE	30-35	15-20	1	!	01-05	25-30	;	20-25		!	!		!	
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ASBESTOS	Present*	<u>α</u>	Δ.	z	z	А	Д	Д	£4	ρι	Ωŧ	z	z	ρι	z
SAMPLE	QI	45	46	47	8	49	20	51	52	53	54	55	56	57	58

* P = ASBESTOS PRESENT COMMENTS:

** ANALYST ID CODE (SEE LAST PAGE)

- ASBESTOS NOT OBSERVED

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medita (#299) and i MTAV (#1143) Accordined Tabusatory



Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Job Site : Cameron Station

27

Bldg #

Job Number: 3001

Date Sampled : 01/22/91
Date Analyzed : 02/01/91
Person Submitting: DAVID BARNES

MICROSCOPY LHGHT POLARIZED 日 〇 SUMMARY

		COMMENT										
	ANALYST	10**	8 8	АВ	79	AB	A B	AB	8	AB	A	AB
		PARTICULATE	50-54	45-50	45-55	45-55	20-24	20-30	30-40	30-40	50-55	50-55
/ * 引		OTHER	1	1	;	1	01-05	1	1	1	1	1
MATERIA	ORGANIC	FIBERS	₹	₽	25-30	25-30	70-75		30-35	30-35	₽	7
R FIBROUS	MINERAL FIBROUS ORGANIC	GLASS	01-05	05-10	20-25	20-25	1	₹	30-35	30-35	45-50	45-50
/ OTHER FIBROUS MATERIAL %/	MINERAL	MOOL	!	!	1	1 1 1	1	1	1	1	!	
	ANTHOP-	HYLLITE	1	:	; ; ;	1 1 2 3	1	1	1	•	1	ļ
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38 &	TREMO-	LITE		1	1	1	:	1 1 1	1		;	
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/ ASBESTOS		AMOSITE	15-20	20-25	1	1	1	1		1	1	1
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	ASBESTOS	PRESENT*	Д	ρı	×	×	ρ.	ρ.	z	z	z	z
	SAMPLE	a	755	756	757	758	759	160	761	762	763	764

LAST PAGE OF 4 PAGE(8)

Bulk Insulation Samples, Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in

** ANALYST ID CODE (SEE SIGNATURE)

- ASBESTOS NOT OBSERVED

COMMENTS: * P = ASBESTOS PRESENT

. Edward Carney (g

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

APPENDIX 21-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde Tederal Services

3. 3001

WCFS Projec

Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIMIRS

Woodward ; Federal Services c/o Charles Brummett CAC, RRMU, Bldg. 17 Comeron Stetion Alexandria, VA (703) 274–6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

BL06 21

Sample Date: <u>OLE3191</u> NW 00 Y

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PCB Wipe	<u> </u>								3		
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Asbest		7									
TCLP						3			13		
ИП									1 0		
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Woodward-Clyd ederal Services

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 2 1/1/1/3_

BLDG 21

Sample Date: 01 129191

MM 00 YY

Field Office:

Woodware c/o Charles Brummett EACA, RPMO, Bldg. 17 Comeron Stelion Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

of Containers	урфилрец	•							and and and and and and and and and and		
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Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project 3001 Instellation (2): CM Sample Program (3): BEI Labordory (2): PC

Field Office:

Woodward- Federal Services c/o Charles Brummett EACA, RPMO, Bldg. 17 Cameron Stetion

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800 Alexandria, VA (703) 274~6548

Admin. Office:

COC By: DMU2 Initials

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WCFS Project 7.0. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

Woodward-Clyd ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 2018

BLDG AI

Sample Date: 07 1221 91

Field Office: Woodward Federal Services c/o Charles arumment EACA, RPMO, Bidg. 17
Cameron Station
Alexandria, VA
(703) 274-6548
Admin. Office: Woodward-Clyde Consultants
Rockville, MD 20850
(301) 309-0800

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Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES.

COC By: DM B Initials

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Sample Date: O/132|9/1

WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

Woodward—, Federal Services c/o Charles Brummett EACA, RRAIO, Bldg. 17 Cameron Station Alexandria, VA (703) 274–6548 Field Office:

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800 Admin. Office:

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Woodward-Clyde F

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

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Sample Date: 0/ 1031 91

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stallation (2): CM ample Program (3): aboratory (2): PC /CFS Project No.

Field Office:

Services

Woodward-Clyde Percelo Charles Brummett CACA, RRWO, Bldg. 17 Cameron Stolon Alexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin, Office:

Number of Containers Total Number of Containers TPHC (9c) PCB Wipe 1000 Asbest **UOI** 12:05 Signatures Signoture: CF +05 (RI) CHUT KU0+ NLO 7703 TAL Metals Time NON-TCL Pest (30/s08a (3c/ec) Accepted by: Woodward-Clyde 90W7 0CP/PC8s (gc/ms) Pee Lob, 9017 SAOC OMO6 COM SOV | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC | NOC Accepted by: Comments: Date: . sample Techniques Depth Fr. (5) Site (4) 를 <u>중</u>(5) Signoture: WCFS Field Sample ID (8) 450 650 053 057 05.5 056 $g_{\mathcal{B}}$ Signature: 32 458 057 4SBOST 458058 ASBO8-3 120 ASBOST 45808A ASI3 OFTE 120 120 120 Time: 1205 20 Site 130) Woodward-Clyde Time of Sampling (Military Clock) (4) Relinquished by: Rece Lab, Jee 16:47 Ò Dote: 1357 Relinquished by: WCFS Field Sampler Initials (3) E. B. F.75 188 18 B Comments: 18 13

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Installation (2): CM Sample Program (3): Laboratory (2):

Woodward-Clyde F ral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIMIB

ally 2

- ederal Services Field Office: Woodward—C — ederal Building 17 Door 2 Canon Station Alexandria, VA 22304 703 617—7373

Admin. Office:

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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,001 WCFS Project N

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Jaral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: DIMIKS

ederal Services Field Office: Woodward
Building 1)
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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BUILDING 22

22.1 DESCRIPTION

Building 22 is a one-story masonry structure with a metal panel roof covered with tar, felt and gravel and a two-foot-wide cement board soffit. The building is used as a guard office and for vehicle registration. It is heated by electric baseboard heaters. No steam lines enter the building.

22.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 22-A,C,D,E, AND F. A summary of this data is presented below.

22.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 22.

22.2.2 Suspect Nonfriable ACM

Four homogeneous areas of suspect nonfriable ACM were identified and ten samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following one material:

2' x 4' cement soffit board

Laboratory analysis using TEM confirmed the presence of asbestos in the following one material:

• 9" x 9" white floor tile

No assessment of thse nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

22.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

22.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

22.4 AREAS NOT ACCESSED

All areas in Building 22 were accessed.

22.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

22.6 REPORT APPENDICES

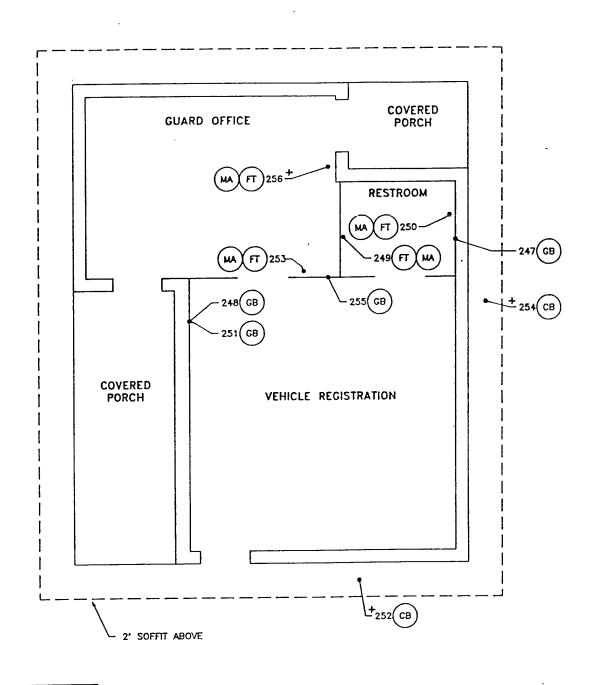
The remainder of this building report consists of the following appendices:

Appendix 22-A	ACM Survey Results
Appendix 22-C	Building Drawings
Appendix 22-D	Walkthrough Survey Data Sheets
Appendix 22-E	Laboratory Certificate of Analysis
Appendix 22-F	Sample Chain-of-Custody Forms

Appendix B is not applicable to this building report.

APPENDIX 22-A ACM SURVEY RESULTS

APPENDIX 22-C BUILDING DRAWINGS



LEGEND

- (CB) CEMENTITIOUS BOARD
- GB GYPSUM BOARD
- FT FLOOR TILE
- (MA) MASTIC
 - + DENOTES POSITIVE RESULTS

USATHAMA USATHAMA	LOCATION Camero	n Statio	n, Al	exand	ria, virg	ginia	
Woodward-Clyde 👄	TITLE	SA		DING DING			
Federal Services	PROJECT NO.	DRAWN BY:	LAL	DATE	5-15-91	DWG NO	22-SL
rederdi Services	3001-210	CHECKED BY:	F.B.G.	SCALE	2.Т.Н	1	CC DL

APPENDIX 22-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Static				Walkthrough Survey 1 Sheet 1 of 4
Building 22 Guare	Konse	EXTERIOR	TOR	Inspector Date Vara colligarda
Exterior Siding				
Masonry □ Steel/A	Steel/Aluminum	□ poom	Asbestos Cement Shingle	Asphalt Shingle
Other Metal porch ceiling		Soffit # Hare hound	Sample I conclude 9	Josephy 220SF
Sample Y (N)	Condition	F P	Quantity	
Roof Shingle (asphalt/fiberglass) □	Assuran Tar & Felt #	over Steel Panel	Fiberglass Panel	Other 🗆
Sample Y N	Condition G	F P	Quantity 573 SF	
Exterior Mechanical Systems	<u>Sample</u>	Condition	Quantity	Location
Vent pipe	Z A	GFP		
Chimney \square	Z ×	GFP		
Louvers	Z	GFP		
A/C Units I本	*	GFP		
Other	Z	GFP		
		S) i	STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	Wood Columns	Steel Column	Concrete Column
Sample Y (N)	Condition G	स प	Quantity	0
Sample Y N	Condition G	Ţ.	Quantity SF	
Firewalls - Steel	Masonry 🗆		Firedoor	
Sample Y N	Condition G	प स	Quantity SF	
				Woodward-Clyde Federal Services
D:\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				November 16, 199

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Cameron Stat

Building			NIB		Inspector/Date:		
	ID #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Fumace						·	
Tanks/Vessels							
Elec./Telephone							
					,		
Other							
-							
*Type of Insulation:	S Trouvelled-on						
2. Blanket	6. Mud						
3. Aircell	7. Other				Wood.	Solution Bodge Co.	,
4. Fiberglass					MOOM.	Woodward-Clyde Federal Services	Vices

3 of 4

Sheet

Walkthrough Survey.

meron Station

uilding "22.

HVAC

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Diam. of Pipe									·			
Quantity SF/LF or # Fittings	,			·								
Amount												
Condition G F P												
Sample Y N												
Type of Insulation*												
Insulated Y N			×									
Location			Restrooms									
	Duct		Pipe			Fittings		Other				

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

22 SUARD HOUSE

yes, good
468 000d
·

Walls Gypboa	Other	
,		
*Material Ceiling 2x4 tile	2x2 tile 1x1 tile 1x2 tile Plaster Other	

=		
ard/Drywall		

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

APPENDIX 22-E LABORATORY CERTIFICATE OF ANALYSIS

Woodward-Clyde Federal Services

1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg #

Date Sampled

Person Submitting: DAVID BARNES : 02/07/91 Date Analyzed

> : Cameron Station Job Number: 3001

Job Site

MICROSCOPY LIGHT POLARIZED Q FI SUMMARY

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1 PAGE(8) LAST PAGE OF

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Balk Insulation Samples.

** ANALYST ID CODE (SEE SIGNATURE)

- ASBESTOS NOT OBSERVED

* P = ASBESTOS PRESENT

COMMENTS:

(AS) Andreas Saldivar This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and trace Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





ee eeg lii jaar eg haddha caaratary



May 15, 1991

Woodward-Clyde Federal Services One Chruch Street, Suite 404 Rockville, MD 20850

RE:

TEM Bulk Analysis Cameron Station

JOB SITE:

Bldq. 22

JOB LOCATION:

Cameron Station

PROJECT NUMBER:

3001

Attention Sally Guardia:

This is the final report for transmission electron microscopy (TEM) analysis performed on your floor tile sample. The sample was submitted by Sally Guardia of Woodward-Clyde Federal Services to AMA Analytical Services, Inc. on April 16, 1991. Analytical results were reported to Sally Guardia of Woodward-Clyde Federal Services by telefax and telephone, on April 23, 1991.

The sample set consisted of one (1) sample. One (1) sample was prepared and analyzed following Dr. Eric J. Chatfield's revised TEM protocol (submitted to the ASTM Committee 022.05.07.007 in 1988).

The result of the TEM analysis is shown below:

SAMPLE	TEM ASBESTOS CONC.		DOLOMITE/ CALCITE	NON FIBROUS MINERALS
256	31 - 32%	24%	44%	<2%

Woodward-Clyde Federal Services May 15, 1991 Page 2 of 3

The asbestos detected in the sample was chrysotile, and was identified by selected area electron diffraction (SAED) and energy dispersive X-ray analysis (EDXA).

Sample Preparation

A representative portion of the sample is placed into a preweighed porcelain crucible. The sample weight is recorded. The sample is then placed into a muffle furnace at 480 degrees Celsius for a minimum of 12 hours. The weight of the residual ash is then calculated and recorded.

A quantity of the residual material is suspended in ethanol in a glass vial and treated ultrasonically. A drop of the suspension is placed onto a carbon-coated copper grid and allowed to dry. If, upon TEM observation, an excess of calcite/dolomite is present in the ashed material, these carbonates are then extracted using hydrochloric acid; the asbestos is not extracted by this process. The acid-treated sample is then prepared for analysis, as above.

Analytical Methodology

Analysis is conducted using a JEOL 100CXII transmission electron microscope equipped with either a Kevex (Delta Class) or EG&G Ortec energy dispersive x-ray analyzer. The sample grid is examined at 100X to determine the quality of the sample preparation. A screen magnification of 15,000X is then used for the analysis of 5 grid openings.

Structures having aspect ratios $\geq 5:1$ and a 0.5 micrometer minimum length are examined in detail. Structure morphology, selected area electron diffraction (SAED) and EDXA are used to differentiate asbestos from non-asbestos structures. Photographic documentation of representative asbestos structures, as well as EDXA data, is recorded for each asbestos containing sample.

Results

The percentage of ashed material identified as asbestos is estimated within a lower and upper range. The percentage of asbestos present in the entire sample is calculated. If acid extraction is used, the percentage of calcite/dolomite is also calculated.

Woodward-Clyde Federal Services May 15, 1991 Page 3 of 3

AMA Analytical Services, Inc. thanks Woodward-Clyde Services for the opportunity to work on this project. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely, AMA ANALYTICAL SERVICES, INC.

Luis H. Bustillos

Electron Microscopist

Robert M. Powell Laboratory Director

LHB/kec

APPENDIX 22-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BE! Laboratory (2): PC

Woodward— Federal Services c/o Charles prummett EACA, RPMO, Bidg. 17 Comeron Stotion Alexandria, VA (703) 274-6548

Woodward-Ciyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

COC By: DM 18

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Rockville, MD 20850 (301) 309–0800	(5g) OH9T									farmen)		
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		1 -13					ļ					
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	Site Type (4)									3		
i	File Type (3)									in	12	
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BUDG 9	Site 10 (10)		ASBags	teoest	ts8a33	LEOGSH	A53033	ee08st/	A50032	7.35		ly ypun
71.30 g/	Time of Sampling (Military	Clock)								Woodward-Chde	Pace 19b, Inc.	edon
Sample Date: 0/394	WCFS Field Sampler	Initials (3)	634	434	921	623	584	92	122	Reinquished by:	Relinquished by	Comments:

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C

Woodward-Clyd ederal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: AMB

Field Office:

Woodward—Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0860

Woodward

c/o Charles Brummett
EACA, RPMO, Bldg. 17
Comeron Station
Alexandria, VA
(703) 274-6548 Admin. Office:

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	JEZI NAME CC COOP (1)	3000							Accepted by:	Accepted by: Date:	Comments:
	Flag Code (1)	Somple							¥ Z	Accep Date:	Š
	Depth Ft. (5)										
	Site (4)]		
	File Type (3)								in	3	
23	WCFS Field Sample	(8)	254	255	256				Slandture M. Dient	Signature	
Se as	Site ID (10)		45,6033	H:13033	458032				Time: (5-35	Time: GCC	
Sample Date: 2/3091	Time of Sampling (Military	Clock) (4)							y: Woodward-Clyde		
Sample Date:	WCFS Field Sampler	Initials (3)	B	649	\$				Relinquished by:	Relinquished b	Comments:

The Course with a man a market with an election

BUILDING 23

23.1 DESCRIPTION

Building 23, the base service station, is a one-story masonry structure with a flat metal panel roof. It is divided into areas for sales, storage, offices, a garage, two restrooms and a wooden storage area at the rear. Interior building materials include floor tile over concrete, ceiling tile and gypsum board. Heat is supplied by electric heaters. No steam lines enter the building.

23.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 23-A,C,E, AND F. A summary of this data is presented below.

23.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 23.

23.2.2 Suspect Nonfriable ACM

Four homogeneous areas of suspect nonfriable ACM were identified and twelve bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these four materials.

23.2.3 Material Assumed To Contain Asbestos

No materials in Building 23 were assumed to be ACM.

23.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

23.4 AREAS NOT ACCESSED

All areas in Building 23 were accessed.

23.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable

23.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 23-A ACM Survey Results

Appendix 23-C Building Drawings

Appendix 23-E Laboratory Certificate of Analysis

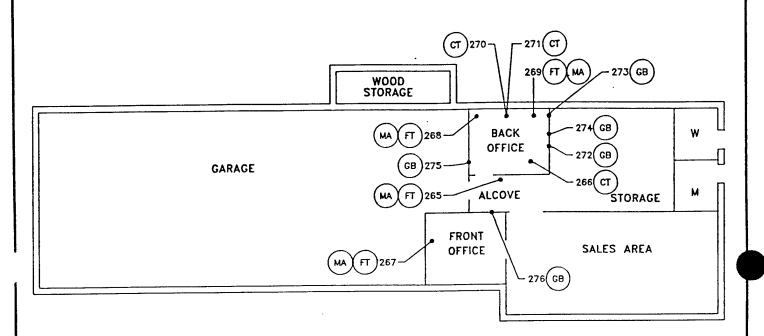
Appendix 23-F Sample Chain of Custody Forms

Appendices B and D are not applicable to this building report.

APPENDIX 23-A ACM SURVEY RESULTS

APPENDIX 23-C BUILDING DRAWINGS





LEGEND

- CEILING TILE
- FLOOR TILE
- MASTIC
- GYPSUM BOARD

CLERT USATHAMA

Woodward-Clyde Federal Services



LOCATION	Cameron	Station,	Alexandria,	Virginia

TITLE BUILDING 23 SAMPLE LOCATIONS

PROJECT NO.	DRAMM BY:	LAL	DATE:	5-16-91	DWG. NO. CO. CT.
3001-210	CHECKED BY:	F.B.C.	2CYTF:	N.T.S.	なりーシア

APPENDIX 23-D WALKTHROUGH SURVEY DATA SHEETS

ameron Station

wilding 23

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Breching Breching		UD #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
ing Seeds Se	Boiler							
Phone the control of								
Breaching Furnace Tanks/Vessels Furnace Tanks/Vessels Furnace Elec./Telephone Furnace Other Furnace			-					·
Furnace Tanks/Vessels Elec./Telephone Elec./Telephone Other	Breeching							
Furnace Tanks/Vessels Tanks/Vessels								
Tanks/Vessels Files./Telephone Elec./Telephone Files/File	Furnace					·		
Elec. Telephone 6 Other 7	Tanks/Vessels					·		
Elec./Telephone 6								
Elec./Telephone 6								
Other	Elec./Telephone							
Other								
Other								
Other					,			
Other								
Other								
	Other				•		·	
							•	

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell

Trowelled-on
 Mud
 Other

HVAC

ameron Station

uilding 23

Diam. of Pipe											
Quantity SF/LF or # Fittings											
Amount					-						
Condition G F P											
Sample Y N	no										
Type of Insulation*											
Insulated Y N	2%										
Location											
	Duct		Pipe			Fittings		Other			

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell

Trowelled-on
 Mud
 Other

Sheet

meron Station

INTERIOR - CEILING/WALLS/FLOORS/MISC.

ilding 33

								ion	lý in	۲.	_		·		
Quantity		n 400 sp	~100 SF			~ 930 50	300 36				~2300 SF	٠			
Condition G F P		bood	bood			bood	bood				bood				
Sample Y N		yes	yes	-		105	yes.)			468	N	`	N	
Location		Front saler, Front Alice Back extre	Back above office			GH Amshed areas	wood storage area real				all fortshed areas	strake, garage		RR	
Color/Pattern		white	Crean			white / lisured	unoarhed				painfed				
Material*	Gloss Alle	41-12"x12"	#7-10" 112"		Postma Rile	# 1 - 2x x 4	\$2 - Amin 00				Wall board	Conours flor		Congram Olle	

Material	Ceiling	

2x4 tile 2x2 tile 1x1 tile 1x2 tile Plaster Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

APPENDIX 23-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

vi ABIA (#244) and (JVLAP (#1143) Accredited Laboratory

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

: Cameron Station Job Site Bldg #

Job Number: 3001

: 02/14/91 Date Analyzed Date Sampled

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED **H**0 SUMMARY

	COMMENT												
ANALYST	ID**	ខ្ល	မွ	ខូ	8	ઇ	ខ្ល	ខ្ល	8	ខ្ល	કુ	ខ្ល	မွ
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S MATERI ORGANIC	FIBERS	01-05	35-40	₽	01-05	01-05	35-40	35-40	10-15	05-10	20-25	35-40	40-45
FIBROUS	GLASS		20-25	:			25-30	25-30	₽	₹	1	-	-
/ OTHER FIBROUS MATERIAL &/ MINERAL FIBROUS ORGANIC	MOOL	† † •	:	;	į	1	!	1	!	1	1	1	1
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ACTIN-	OLITE					1		1	1				
2.	LITE		1		!		1			1	1	1	
- ASBESTOS &	LITE					1				1			
/ ASBESTOS & CHAYSO- TRE	AMOSITE			-	-	1	-	1				1	1
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ASBESTOS	PRESENT*	z	z	×	×	z	z	Z	z	×	z	z	×
SAMPLE	A	265	266	267	268	269	270	271	272	273	274	275	276

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

** ANALYST ID CODE (SEE SIGNATURE)

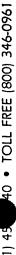
- ASBESTOS NOT OBSERVED

COMMENTS: * P - ASBESTOS PRESENT

G. Edward Carney

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.







APPENDIX 23-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde F ral Services

WCFS Project 1, (**) 101

nstallation (2): CM Sample Program (3): BEI aboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

coc By: AM 12

ederal Services Field Office: Woodward—C ederal
Building 17
Door 2
Cameron Station
Alexandria, VA 22304
703 617—7373

Admin. Office: Woodward—Ciyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309—0800

BUDG 23

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Herbicides .									Analytical Services, Inc.	
(39/26) #ESA/920)	LH19	·							\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
Pest Pest	90MU								\$ 6	
200C	UM06									ł
207	LMOS								18.08	
DC CODE (1)	Sample S		•						Accepted by.	
Techniques (1) Flag Code (1)									~ ^ ^	
Depth Ft. (5)										,
Site Type (4)		·								
File Type (3)									San	
WCFS Field Sample ID	(8)	265	998	267	892	592	270	27/	Signature: Al. Barn	
Site ID (10)		488023	458023	JE 8023	458023	48033	A58023	458033	Woodward-Clyde Federal Services	10
Time of Sampling (Military Clock)	(4)								by: Woodword-	
WCFS Fleld Sampler Initials	(3)	136	439	8	F85	FBG	FB6	636	Relinquished by:	Commenter

White & Yellow: AMA ... lytical Services, Inc.

3-28-91 1500 K.M

et pe

Project Scientist

Gold: *

WCFS Project N

Installation (2): CM Sample Program (3): BEI Laboratory (2):

Woodward-Clyde () ral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

coc By: DM B

ederal Services

Fleid Office: Woodward-Building 17
Building 17
Boor 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800 Admin. Office:

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File		
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WCFS Field Sampler	Time of Sampling (Military	Site ID (10)	WCFS Field Sample	File Type (3)	Site Type (4)	Depth Ft. (5)	Peat Peat Peat Peat Peat Peat Peat Peat	(36/36)	Herbicides Rotenone	ziotəM JAT	CYN	(AI) 2H9T	cr	ПИ	ขวา	Asbest	TCDD PCB Wipe				ensoniotnoo to
(2)	(4)		(8)				Sample F	1 1000	элан	2122	E418.1 KA04 LA02	F.81+3			LICIMS	06ZBMS	06Z8WS				Иитрег
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186		186023	273																		
\$		486023	274		·																
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3/28/4/ 1300 X White & Yellow: AMA Lunivition Services, Inc.

ect File Pink: WCFS

Project Scientist Cold:

BUILDING 24 - RECREATION

24.1 DESCRIPTION

Building 24 consists of a sheltered picnic area and two restrooms. The shelter has a concrete floor, a metal roof and is open at the sides. The restrooms have masonry walls, a metal roof and a concrete floor.

24.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable, in Building 24. No bulk samples were collected, and no materials were assumed to be ACM.

24.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

24.4 AREAS NOT ACCESSED

All areas in Building 24 were accessed.

24.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

24.6 REPORT APPENDICES

The remainder of this building report consists of the following one appendix:

Appendix 24-D

Walkthrough Survey Data Sheets

Other appendices are not applicable to this building report.

APPENDIX 24-D WALKTHROUGH SURVEY DATA SHEETS

Sameron Station				Walkthrough Survey Data Sheet 1 of 4
Suilding 24 Recreeton	Ce		EXTERIOR	11/20/90
<u> </u>	All metal way	Jan		
vlasonry 田 Steel/A	Steel/Aluminum	□ poo _M	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	Soffit	п		
Sample Y (N)	Condition G	F P	Quantity	SF
<u>J007</u>				
Shingle (asphalt/fiberglass)	Tar & Felt 🛚	Steel Panel	Fiberglass Panel	Other
Sample Y (N)	Condition G	ŗr d	Quantity	SF
Exterior Mechanical Systems	4/N			
	Sample	Condition	Quantity	Location
Vent pipe	z >	GRP		
Chimney	z	G FF P		
Louvers	z	G FF P		
A/C Units	z	G F P		
Other	z >	G F P		
			STRUCTURAL	
Wood Joists/Beams □	Steel Joists/Beams	Wood Columns	ns 🗆 Steel Column 🗅	
Sample Y (N	Condition G	स	Quantity	SF MASOURY E
Sample Y N	Condition G	Er.	Quantity	· .
Firewalls - Steel	Masonry		Firedoor 🗆	
Sample Y N	Condition G	ŗ. G	Quamity	SF

2 of 4

Jameron Station

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

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ing	
Pling	

				 				 			 	 		==	
C	Quantity														
	Condition G F P														•
	Sample Y N												•		
	Type of Insulation*														
	# Units														
	Insulated Y N														
1 3/6	Ω#														
		Doiler	pollet	Breeching	0	Гитасе	Tanks/Vessels		Elec./Telephone			Other	-		

*Type of Insulation:
1. Premold
2. Blanket

Trowelled-on
 Mud
 Other

ameron Station

48 guilding

HVAC

		 		 	 7	 	 		 	 		 1
Diam. of Pipe												
Quantity SF/LF or # Fittings												
Amount												
Condition G F P												
Sample Y N												
Type of Insulation*												
Insulated Y N												
Location												
	Duct		Pipe			Fittings		Other				

*Type of Insulation:

1. Premold
2. Blanket
3. Aircell
4. Fibershore

Trowelled-on
 Mud
 Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

					 	 	 	 	 	 -	· ———	==1
	Quantity											
::	Condition G F P											
Inspector/Date:	Sample Y N	N		N	N							
	Location											
	Color/Pattern											
Suilding 27	Material*	16 001/10 16	No common of	Concert, Stor - 1/2 Lile	contra start walk							

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet

Woodward-Clyde Federal Services

November 19, 1990

BUILDING 25

25.1 DESCRIPTION

Building 25 is a one-story wood frame structure built on pilings with aluminum siding covering the wood. The roof is asphalt shingles over roofing felt. Heat is supplied by Building 21, the Boiler House, through underground steam pipes. Currently Building 25 houses the Installation Support Branch, MDW laundry/cleaners and a preparation area for installation food services.

25.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 25-A through 25-F. A summary of this data is presented below.

25.2.1 Suspect Friable ACM

One homogeneous area of suspect friable ACM was identified and three bulk samples were collected. Laboratory analysis using PLM confirmed the presence of asbestos in this material:

Corrugated paper pipe insulation

Assessment of this material, which was found in one functional space, indicates a damage factor of 7 and an exposure factor of 17. According to the GAHA Index, this material ranks as Priority B.

25.2.2 Suspect Nonfriable ACM

Seven homogeneous areas of suspect nonfriable ACM were identified and fifteen bulk samples, including one QC sample, were collected. Laboratory analysis using PLM confirmed the presence of asbestos in the following five materials:

•	Ft 1	9." x 9"	brown floor tile and mastic
•	Ft 2	9" x 9"	green floor tile and mastic

- Ft 3 9" x 9" black floor tile and mastic
- Ft 4 9" x 9" light grey floor tile and mastic
- Ft 5 9" x 9" dark grey floor tile and mastic

No assessment of these nonfriable materials was performed. However, as ACM they should be included in an O&M Program.

25.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

25.3 WALKTHROUGH SURVEY DATA CHANGES

During sample collection, the following material, originally noted in the walkthrough survey as suspect ACM, was examined more closely and identified as nonsuspect:

• CT 1 2' x 4' fiberglass ceiling tile

No bulk samples of this material were collected, and it was deleted as a homogeneous sample area from the final survey data.

25.4 AREAS NOT ACCESSED

All areas in Building 25 were accessed.

25.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

The quantity of friable asbestos per assessment category is listed below in Table 1, Quantity of Friable Asbestos.

QUANTITY OF FRIABLE ASBESTOS

Building No.	Category A	Category B	Category C
25		20 LF PI	

TSI = THERMAL SYSTEM INSULATION

MF = MUDDED FITTINGS

PI = PIPE INSULATION

* = IMMEASURABLE AMOUNT OF ASBESTOS DEBRIS

1.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 1-A ACM Survey Results

Appendix 1-B Assessments/Recommendations for Friable ACM

Appendix 1-C Building Drawings

Appendix 1-D Walkthrough Survey Data Sheets

Appendix 1-E Laboratory Certificate of Analysis

Appendix 1-F Sample Chain-of-Custody Forms

APPENDIX 25-A ACM SURVEY RESULTS

Woodward-Clyde Federal Services July 3, 1991

ACM Survey Results re. Juilding 25 (continued)

	Material	Material Description				Quantity	ıtity			
Homogen- eous Sample Area	Category (surfacing TSI or misc.)	Type (e.g., pipe insulation; floor tile)	Location (where material is found)	Friability (Non, Low, Mod. or High)	Condition (Good, Fair, or Poor)	Estimated Amount	Unit of Measure- ment (SF, LF or # of fittings)	Sample #	Sample Results (% and type of asbestos)	Comments
ω	Misc.	Floor tile & mastic	Storage area adjacent to steam room; See Drawing 25-FT	Non	Poog	320	ι π	289 290	1-5% chrysotile 1-5% chrysotile	FT 5 9" x 9" dark grey floor tile
თ	Misc.	Ceiling tile	Offices between Doors 8&3; See Drawing 25-CT	c O V	р 00 0	0	ις C	282 283	None detected None detected	CT 2 12" x 12" light brown w/fissures

APPENDIX 25-B ASSESSMENTS/RECOMMENDATIONS FOR FRIABLE ACM

Rames / Butaches 2/6/91 0 No routine maintenance 0 > 5 ft & no routine maintenance Proximity of material to routine maintenance areas: (mark all that apply but score only the higher of A or B; (maximum score of 3 points.) 3 Contaminated ceiling panel requires removal; (1) Yes, routine maintenance required; NO HAZARD Samples contain no asbestos 4 Ceilings/walls Material Type(s) 0 None <1 ft. or ceiling panel contaminated; $2 \le 1 \le \text{ft} < 5$; $1 \ge 5 \text{ ft}$; Inspector 0-4 Other friable material; (1) Boiler/pipe; 3 HVAC; $(\hat{2})$ Low; 1 Minimal; • Type of material (If area contains several friable materials, score the one with the greatest quantity). Part 1: Damage/Risk • Asbestos content: Use percentage for material with highest probability for becoming airborne: 5 > 50%; Functional Space) 3-1 Food prep. Orla answers to 4 Moderate; Potential for Contact based on material proximity to area occupants: (1) 1 < % \leq 30; 3 30 < % \leq 50; 5 Medium; (2) Low 5 High; 3 Medium; 0 Low 288 5 High; 286, 287, oN (0) က Damage/Risk Total 5 • Visible evidence of physical damage: Pipe, boiler or duct insulation: 8 High; Building 3 Yes; A. Sprayed- or trowelled-on: Homogeneous Sample Area #(s) Sample Numbers: > 10 ft: < 10 ft: Water damage: Cameron Station ä Ķ æ

Woodward-Clyde Federal Services

Dannes 1 Guarler, 2/6/91	no were the fall with the training of	Material Type(s)
dsuI		N. C. C.
124		3
Building	•	Homogeneous Sample Area #(s)

allen

3-1 Food pres, and adjusted to stam Functional Space

Part 2: Exposure

• Friability: 6 High; (3) Moderate; 1 Low

 $2 100 \le \text{ft}^2 < 1000;$ • Amount of Visible Friable Material: (0) < 10 ft²; $1 \cdot 10 \le \text{ft}^2 < 100$;

> 1000 ft₂

• <u>Surface Material</u>: (If more than one material, score roughest; score exposed materials as 'rough'.)

(4)Rough; 3 Pitted; 2 Moderate; 1 Smooth

• Ventilation: (Mark all categories that apply; maximum of 7 points.)

5 Interior supply; 2 Interior return; 1 Fiber potential in air supply; (0) None of the above

0 No perceptible air flow in area • <u>Air Movement</u>: 5 Routine turbulent/abrupt air movement; (2) Perceptible/occasional air stream;

Activity (Refers to forces such as vibration, water or steam acting on material.)

0 Low 5 High (constant vibration); (2) Medium (occasional vibration);

0-4 Unique situation (e.g., dirt floor) 4 Carpet; 2 Seamed or rough surface; (1) Smooth surface;

Barriers: (Mark all that apply but score only the higher of A or B; maximum of 4 points.)

• Floor:

A. Sprayed- or trowelled-on ceiling or walls

3 Railing or wire; 1 Suspended ceiling; 2 Encapsulation; Pipe, boiler, duct or other material - percent of total exposed and visible to occupants œ.

 $201 \le pop \le 500$ 3 $50 < \% \le 75$; $(4)75 < \% \le 100$ 2 $10 \le \text{pop} \le 200$; • Population: $(1) \le 9$ or for corridors;

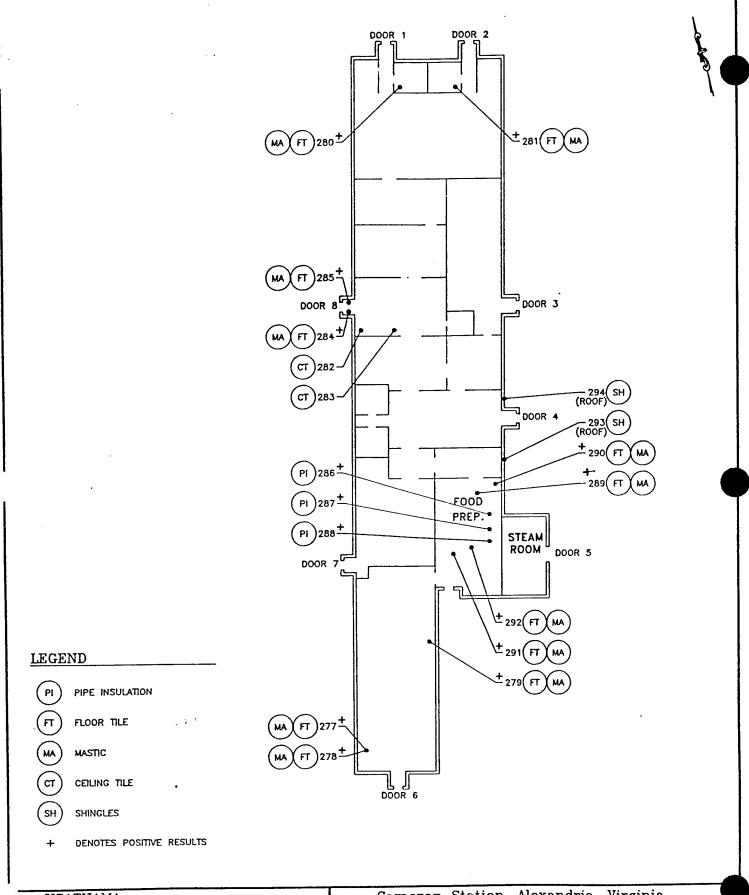
 $1 \le 25\%$; $2 \ 25 < \% \le 50$;

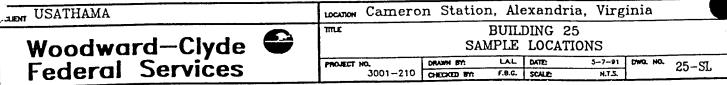
5 > 1001 or medical/youth centers/residential 4 501 ≤ pop ≤ 1000; Exposure Total

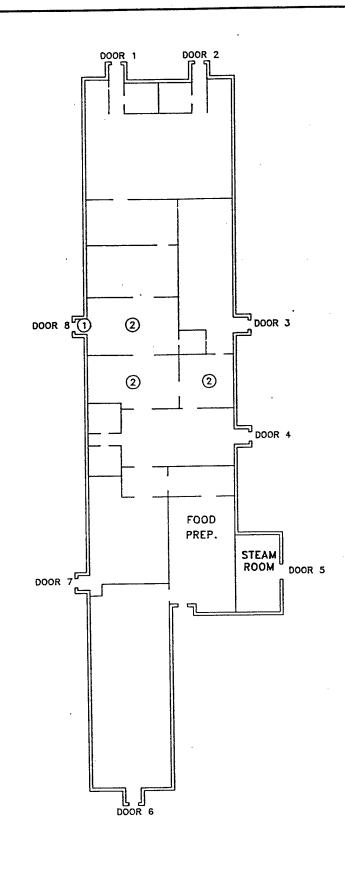
Woodward-Clyde Federal Services

November 19, 1990

APPENDIX 25-C BUILDING DRAWINGS



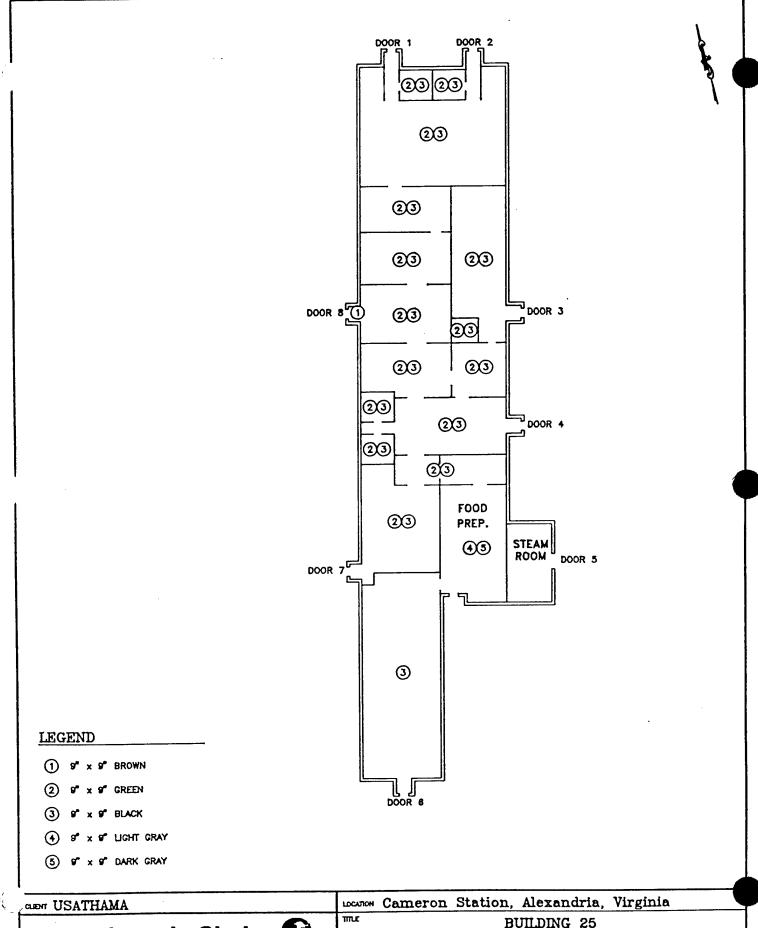




LEGEND

- 1) 2' x 4' WHITE FIBERGLASS TILE
- 2 12 x 12 BROWN FISSURED TILE

CLERT USATHAMA	LOCATION	Cameron	Station,	Ale	xandria	, Virg	inia		
Woodward-Clyde	TITLE		B' CEILING		DING 25 PE LOCA	TIONS			
Federal Services	PROJECT	NO. 3001-210		LAL F.B.G.	DATE: SCALE:	5-7-91 N.T.S.	DWG. NO.	25-CT	



APPENDIX 25-D WALKTHROUGH SURVEY DATA SHEETS

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

uilding 425			K/K		Inspector/Date: Cermon	was prosenters	12/20/50
	UD #	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							-
Fumace							
Tonke/Voccole							
I allhal a cascus							
Elec./Telephone							
							-
Other							

*Type of Insulation: 1. Premold 2. Blanket 3. Aircell 4. Fiberglass

- Trowelled-on
 Mud
 Other

HVAC

ameron Station

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	Insulated Y N				Say										
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uilding #25		Duct			Pipe				 69		Other				*Type of Insulation:

Trowelled-on
 Mud
 Other

Premold
 Blanket
 Aircell
 Fiberglass

Woodward-Clyde Federal Services

heet

INTERIOR - CEILING/WALLS/FLOORS/MISC.

Sameron Station

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g"x9"	Gown Such				
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			,		

*Material	Ceiling	2x4 tile	2x2 tile	1x1 tile	1x2 tile	Placter

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet Carpet only Concrete

Woodward-Clyde Federal Services

APPENDIX 25-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

on Ali IA (#244) and 4AliANP (#1143) AKCERNICAL Laboratory Woodward-Clyde Federal Services

U

1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 25
Job Site : Cameron Station
Job Number: 3001

Date Sampled : 02/06/91

Date Analyzed : 02/14/91

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED 国 0 SUMMARY

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COMMENTS: * P = ASBESTOS PRESENT

** ANALYST ID CODE (SEE LAST PAGE)

N - ASBESTOS NOT OBSERVED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





AMA Analytical Services, Inc.

en AlitA (#244) and ctVEAP (#1143) Accredited Laboratory

W

Woodward-Clyde Federal Bervices 1 Church St. Suite 404 Rockville, MD 20850 Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 25

Job Site : Cameron Station Job Number: 3001

Date Sampled : 02/06/91

Date Analyzed : 02/14/91

Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED **国** SUMMARY

		//	1	/ ASBESTOS \$	# SC		/	/ OTHER FIBROUS MATERIAL &/	R FIBROU	S MATERI	N. 4/			
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** ANALYST ID CODE (SEE SIGNATURE)

N = ASBESTOS NOT OBSERVED

COMMENTS: * P * ASBESTOS PRESENT

LAST PAGE OF 2 PAGE(S)

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney (G

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and trace Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.

APPENDIX 25-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde deral Services

3001

WCFS Project

Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 1/2 1/3

e Federal Services Field Office: Woodwan e Federal Building 1 Door 2 Cameron Station Alexandrio, VA 22304 703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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Pink: WCFS Project File

Gold: WCFS Project Scientist

500 WCFS Project

Installation (2): CM Sample Program (3): BEI Loboratory (2):

aral Services Woodward-Clyde

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES COC By: JPD 18

ederal Services

Field Office: Woodward
Building 1
Door 2
Cameron Station
Alexandria, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 , Rockville, MD 20850 , 301 309-0800

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Pink: WCFS Project File

Gold: WCFS Project Scientist

white & Yellow: AMA Aanlytical Services, Inc.

Woodward-Clyde deral Services

WCFS Projection, 3001

Installation (2): CM Sample Program (3): BEI Laboratory (2):

CHAIN OF CUSTODY RECURD - USATHAMA SAMPLES

COC By: D 100 1 B

Fleid Office: Woodwar ie Federal Services
Building 1
Door 2
Camero 2 Station
Alexandrid, VA 22304
703 617-7373

Admin. Office: Woodward-Clyde Federal Services One Church Street, Suite 404 Rockville, MD 20850 301 309-0800

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te & Yellow; A. Kanlytical Services, Inc.

Pink: WCP roject F

Gold: MCFS Project Scientist

BUILDING 26

26.1 DESCRIPTION

Building 26 is a 100' x 100' cast-in-place concrete structure with a tar, felt and gravel roof over wood. It is supported by timber beams on concrete columns. Originally constructed as a water storage tank, Building 26 has been converted to a warehouse and is currently used for storage by AAFES and EA-CA. It contains no domestic water line or heat, only electricity and a security system.

26.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable in Building 26, for which bulk samples were collected. One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

26.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

26.4 AREAS NOT ACCESSED

All areas in Building 26 were accessed.

26.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

26.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 1-A ACM Survey Results

Appendix 1-D Walkthrough Survey Data Sheets

Appendices B, C, F and G are not applicable to this building report.

APPENDIX 26-A ACM SURVEY RESULTS

ACM Survey Results for Building 26

	ı	
	Comments	
	Sample Results (% and type of asbestos)	
	Sample #	Assume ACM
ntity	Unit of Measure- ment (SF, LF or # of fittings)	п П
Quantity	Estimated Amount	10000
	Condition (Good, Fair, or Poor)	рооб
	Friability (Non, Low, Mod. or High)	C O Z
	Location (where material is found)	Roof
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt
Material	Category (surfacing TSI or misc.)	Misc.
	Homogen- eous Sample Area	-

Woodward-Clyde Federal Services July 3, 1991

D:\ASBESTOS/B26.asb

APPENDIX 26-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Statis.				Walkthrough Survey a Sheet 1 of
Building 26 DAFES / EBCB	1 ET G CA Stray	EXTERIOR	<u>or</u>	Inspector Date 12/13/90
Exterior Siding	o			
Masonry □ Steel/A	Steel/Aluminum	Wood	Asbestos Cement Shingle	Asphalt Shingle
Other & Cast " place	place conout soffie	_		
Sample Y (N)	Condition .G	F P	Quantity SF	
Roof Shingle (asphalt/fiberglass) □	Hoverne- Tar & Felt	Steel Panel	Fiberglass Panel	Other 🗆
Sample Y (N)	Condition G	F P	Quantity 10, ord SF	
Mec	Sample	Condition	<u>Quantity</u>	Location
Vent pipe	z >	GFP		
Chimney	×	GFP		
Louvers	Z Z	GFP		
A/C Units	×	ር ፑ ኮ		
Other	z >	GFP		
		ST	STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	Wood Columns	□ Steel Column □	Concrete Column
Sample Y (N)	Condition G	ч	Quantity SF	•
Sample Y N	Condition G	F P	Quantity SF	
Firewalls - Steel	Masonry		Firedoor	
Sample Y N	Condition G	Ŗ	Quantity SF	
				Woodward-Clyde Federal Services

Sheet 2 of 4	Walkthrough Surve	

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

CA-CH STOXUGE

uilding #26 AAFES

meron Station

	Œ.	Insulated	# Units	Type of	Sample	Condition	Quantity
	#	Z.		Insulation+	N. I	4 0	
Boiler							
Breeching							
Furnace							
Tanks/Vessels					,		
Elec./Telephone		٠					
							•
		,					
Other							
							••

Type of Insulation:
1. Premold
2. Blanket
3. Aircell

Trowelled-on
 Mud
 Other

meron Station

EA-UM STOKAGE

	Location	Insulated	Type of	Sample	Condition	Amount	Quantity	Diam. of
		X	Insulation*	Y.	G F Р		SF/LF or # Fittings	Pipe
Duct								
Pipe								
•								
					·			
Fittings								
Other								

Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

INTERIOR - CEILING/WALLS/FLOORS/MISC.

illding #26 AAFES/EA-CA STORAGE

NA

Sample Condition Quantity Y N G F P								
Location								
Color/Pattern								
Material*					-			

							•
Material	eiling	2x4 tile	2x2 tile	1x1 tile	1x2 tile	Plaster	Other

Walls Gypboard/Drywall Plaster Other

Floors
9x9 tile
12x12 tile
Sheet
Carpet only
Concrete

BUILDING 30 - PESTICIDE STORAGE

30.1 DESCRIPTION

Building 30, which is currently used for pesticide storage, is a masonry structure with steel trusses supporting a precast concrete panel ceiling covered with a metal roof. The floor is concrete with no additional floor covering. Approximately 300 square feet of unfinished gypsum board subdivide the building into sections. This material was installed approximately four years ago and is not suspect ACM. Heat is supplied by an electric radiator; no steam lines enter the building.

30.2 SURVEY RESULTS

The survey team identified no suspect ACM, either friable or nonfriable, in Building 30. No bulk samples were collected, and no materials were assumed to be ACM.

30.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes.

30.4 AREAS NOT ACCESSED

All areas in Building 30 were accessed.

30.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not applicable.

30.6 REPORT APPENDICES

The remainder of this building report consists of the following one appendix:

Appendix 30-D Walkthrough Survey Data Sheets

Other appendices are not applicable to this building report.

APPENDIX 30-D WALKTHROUGH SURVEY DATA SHEETS

2 of 4

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

neron Station

1ding 430 12657	VASTICIDE STORAGE		Ala		Inspector/Date: Sun awa / オンンスと	ROLL FRIENES	12/20/90
	ID ##	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Soiler							
3reeching							
-umace							
Canks/Vessels							
Flee./Telephone							
						·	
			٠				
Other							
				•			
voe of Insulation:							

ype of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

ion	
Stat	
leron	

HVAC

	of												
12/20/90	Diam. of Pipe												
/BARNES	Quantity SF/LF or # Fittings												
Date: Sunkling	Amount							•					
Inspector/Date:	Condition G F P											•	
	Sample Y N												
	Type of Insulation*												
	Insulated Y N												
PESTIBLUE STONAGE	Location												T 7
ding #30 1		uct N/A		ipe x://!			Fittings 11/2)ther				ype of Insulation:

Trowelled-on
 Mud
 Other

Premold
 Blanket
 Aircell
 Fiberglass

Woodward-Clyde Federal Servi

INTERIOR - CEILING/WALLS/FLOORS/MISC.

neron Station

Iding #30 DISTICION STORISH			Inspector/Da	e: Eugnya/Ba	Inspector/Date: Sugary of Bandsiss 12/20/20	1
	Color/Pattern	Location	Sample Y N	Condition G F P	Quantity	
	gray (2,12) ted	Set Alan	16	good	~3005×	
Mileau (All Sales		Descale wall to workt)		
		of antin installed				
		3-4 Means 090				
		To new to be				
		Socret DCM				
aterial						

laterial
iling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet Carpet only Concrete

Woodward-Clyde Federal Services

BUILDING 34

34.1 DESCRIPTION

Building 34 is a wood frame structure built on pilings. The roof is asphalt shingles over roofing felt, and the exterior walls are aluminum over wood siding. Inside the floor is concrete with no floor covering. Both the walls and ceiling are finished with gypsum board. The west side of the building is heated by electricity; the east side is not heated. No steam lines enter this building. Building 34 is currently used by EA-CA (Roads and Grounds) for storage.

34.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 34-AC,D,E, AND F. A summary of this data is presented below.

34.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 34.

34.2.2 Suspect Nonfriable ACM

Two homogeneous areas of suspect nonfriable ACM were identified and eight bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in these two materials.

34.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the roofing felt, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

34.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

34.4 AREAS NOT ACCESSED

All areas in Building 34 were accessed.

34.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

34.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 34-A	ACM Survey Results
Appendix 34-C	Building Drawings
Appendix 34-D	Walkthrough Survey Data Sheets
Appendix 34-E	Laboratory Certificate of Analysis
Appendix 34-F	Sample Chain-of-Custody Forms

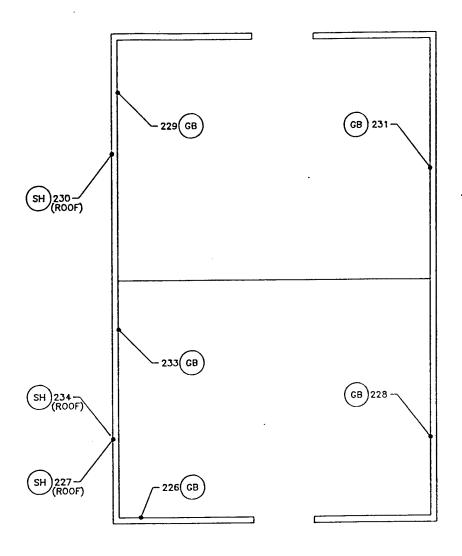
Appendix B is not applicable to the building report.

ACM Survey Results for Building 34

	Comments			Sample 234 is a QC for sample 227.	
	Sample Results (% and type of asbestos)	Assume ACM	None detected None detected None detected None detected None detected	None detected None detected None detected	
	Sample #	Assume ACM	229 231 233 226 228	227 230 234	
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	S.	r L	R.	
Quantity	Estimated Amount	650	1560	650	
	Condition (Good, Fair, or Poor)	Dood O	poog	рооб	
	Friability (Non, Low, Mod. or High)	Non	C O	Non	
	Location (where material is found)	Roof	Walls & ceiling throughout building	Roof	
Material Description	Type (e.g., pipe insulation; floor tile)	Roofing felt	Gypsum board	Shingles	
Material	Category (surfacing TSI or misc.)	Misc.	Surfacing	Misc.	
	Homogen- eous Sample Area	-	7	м	

APPENDIX 34-C BUILDING DRAWINGS

-CARON



LEGEND

(SH) SHINGLES

GB GYPSUM BOARD

LIENT	USATHAMA	
		-

Woodward-Clyde Federal Services



LOCATION	Cameron	Station,	Alexandria,	Virginia

TITLE	BUILDING 34	
	SAMPLE LOCATIONS	3

•					
PROJECT NO.	DRAWN BY:	LAL	DATE:	5-7-91	DWG. NO. 34-SL
3001-210	CHECKED WY	F.B.C.	SCALE	N.T.S.	34-3L

APPENDIX 34-D WALKTHROUGH SURVEY DATA SHEETS

Cameron Statis				Walkthrough Survey a Sheet 1 of
Building 34 Wads	& Ground	EXTERIOR	<u> </u>	Inspector Date Guard of Barrow
Exterior Siding	(EA,CA) stange	taaz		12/20/190
	Steel/Aluminum 🛱	Wood #	Asbestos Cement Shingle □	Asphalt Shingle
Other 🗆	Soffit	·		
Sample Y	Condition	ч . Ч	Quantity	SF
Roof	A training the state of	Cteel Bone	Hitaeralase Dana	
Sample (aspnant/noergnass) pa	Condition G) F	Quantity (550)	SF
Exterior Mechanical Systems	Sample	Condition	Quantity	Location
Vent pipe	z	G F		
Chimney	N X	GFP		
Louvers	Z X	G F P		
A/C Units	z	G F P		
Other	Z	G F P		
		S	STRUCTURAL	
Wood Joists/Beams	Steel Joists/Beams	Wood Columns	Steel Column	Concrete Column
Sample Y (X)	Condition G	स	Quantity	- SF
Sample Y N	Condition G	ğ	Quantity	SF
Firewalls - Steel	Masonry 🛘		Firedoor	
Sample Y N	Condition G	я Р	Quantity	SF
((Woodward-Clyde Federal Services

November 16, 199

2 of 4 · Sheet Walkthrough Surve

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

36

Cameron Stati

Building 34			NIA		Inspector/Date:		
	Ð#	Insulated Y N	# Units	Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels							
Elec./Telephone							
			,				
Other					•		
	·				,		
*Type of Insulation:							

- Frowelled-on
 Mud
 Other
- Premold
 Blanket
 Aircell
 Fiberglass

Cameron Stati

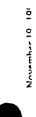
HVAC

	Diam. of Pipe											
	Quantity SF/LF or # Fittings											
r/Date:	Amount											
Inspector/Date:	Condition G F P											
A/14	Sample Y N											
N	Type of Insulation*											
	Insulated Y N											
	Location											
Building 34		Duct		Pipe			Fittings		Other			

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services



INTERIOR - CEILING/WALLS/FLOORS/MISC.

Inspector/Date: 1

Quantity	1560								
Condition G F P	9								
Sample Y N	>								
Location	Thoughout								
Color/Pattern									
Suilding 37 Material*	ayoun down								

*Material
Ceiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Floors 9x9 tile 12x12 tile Sheet

Gypboard/Drywall Plaster Other

Walls

Woodward-Clyde Federal Services

APPENDIX 34-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

and All 18 (#244) and IAVLAP (#1143) Accredited Laboratory

Y

Woodward-Clyde Federal Services
1 Church St. Suite 404
Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

Bldg # : 34
Job Site : Cameron Station
Job Number: 3001

Date Sampled: 01/30/91
Date Analyzed: 02/07/91
Person Submitting: DAVID BARNES

MICROSCOPY LIGHT POLARIZED Ε 0 SUMMARY

	COMMENT		-							
FOXTENE	10**	78	AS	As	88	AS	SS	AS	88	
	PARTICULATE	90-95	70-75	85-90	66-56	90-95	62-36	90-95	75-80	
N/	OTHER		1	!		1	1	1	1	
OTHER FIBROUS MATERIA	GLASS PIBERS	05-10	25-30	10-15	01-05	05-10	01-05	02-10	20-25	
R FIBROU	GLASS		1	1	-	1		1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	c
/ OTHER FIBROUS MATERIAL &/	WOOL	į	1	!	-	1	1	1	!	** ANALYST ID CODE (SEE SIGNATURE)
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	OLITE 1			!	:		!		1	* ANALYS:
- 2	LITE LITE OLITE HYLLITE	*			:		1		1	ā
- ASBEST	LITE	1	;				;			ENT
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		ļ				!	:		1	P - ASBES
	ASBESTOS PRESENT*	z	z	z	z	×	z	z	z	COMMENTS: * P = ASBESTOS PRESENT
1	SAMPLE	226	227	228	229	230	231	233	234	U

LAST PAGE OF 1 PAGE(8)

N - ASBESTOS NOT OBSERVED

Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bylk Ingulation Samples.

Andreas Saldivar (AS)

٢

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.





APPENDIX 34-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyd Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

Woodw. Jde Federal Services c/o Chanes Brunmett EACA, RPMO, Bldg. 17 Comeron Station Alexandrio, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

Field Office:

COC By: DMB

Sample Date: 0/130191

WCFS Proječ. ..o. 3001 Installotion (2): CM Sample Program (3): BEI Laboratory (2): PC

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	Depth Ft. (5)											
	Site Type (4)										3	
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	File Type (3)							į		Signoture: Mr. Pare	lan	
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MN DD AA	WCFS Field Sampler	(C)	188	1 8	133	128	188	188	of a	Refinquist Date:	Inqdis	Comments:
•	\ \rac{\sigma}{-}	_	1	1	1 ~			1	1	Per to	Relinq	[[រូ

White: Pace Lab Yellow: WCFS Chemist Pink: Return to World after sample receipt Gold: Return to WCFS with residual samples

WCFS Project No. 3001 Instellation (2): CM Sample Program (3): BEI Laboratory (2): PC

Woodward-Clyd Federal Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

COC By: 12 Initials

BCD6.34

Sample Date: 01 120191

Field Office:

Woodsternyde Federal Services c/o Charles Brummett EKCA, RPMO, Bldg. 17 Cameron Station Aexandria, VA (703) 274-6548

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309-0800

Admin. Office:

						Signature:	. Si			Time:	lyde	Accepted by: Woodward-Clyde Date: Comments:	Moo	Accepted by Date:	Accept Date: .			3	Signature:	Птв: <i></i>	Relinquished by: Rees Lab, thc. Date: A DA (4) Comments:	Relinquished by: Date: 3/2 Comments:
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ыфтый									KU04 1402		 	30/111	1M06 1M06 1M05	CODE Zamble	Sample				2		(4)	
r of Containers		(5g) OH9T	TCDD PCB Wipe	Asbest	ขวา	TIN	CT 20t	(RI) SHET	СЛИ	NON-TCL Peat.	009/P08s (gc/ec)	(zm/2g) s824/920	2000	VOC Code (1)	Techniques (1) Flag Code (1)	Depth Ft. (5)	Site Type (4)	File Type (3)	WCFS Field Sample ID (8)	Site 10 (10)	Time of Sampling (Military	

BUILDING 68

68.1 DESCRIPTION

Building 68 is a 20' x 24' one-story masonry structure, which is currently used as an office for the motor pool service station. It has a flat metal panel roof covered with tar, felt and gravel. The walls are cinder block. The floor is concrete with no additional covering. The building is heated with electric heaters; no steam lines enter this building.

68.2 SURVEY RESULTS

A detailed presentation of survey results is provided in Appendices 68-A,C,D,E,F. A summary of this data is presented below.

68.2.1 Suspect Friable ACM

No suspect friable ACM was identified in Building 68.

68.2.2 Suspect Nonfriable ACM

One homogeneous area of suspect nonfriable ACM was identified and three bulk samples, including one QC sample, were collected. Laboratory analysis using PLM detected less than 1% asbestos in this material.

68.2.3 Material Assumed To Contain Asbestos

One homogeneous area, the tar and felt roofing material, is assumed to be ACM. No assessment of this nonfriable material was performed. However, as ACM it should be included in an O&M Program.

68.3 WALKTHROUGH SURVEY DATA CHANGES

No data changes. Bulk samples were collected of all materials noted as suspect ACM during the walkthrough survey.

68.4 AREAS NOT ACCESSED

All areas in Building 68 were accessed.

68.5 QUANTITY OF FRIABLE ASBESTOS PER ASSESSMENT CATEGORY

Not Applicable

68.6 REPORT APPENDICES

The remainder of this building report consists of the following appendices:

Appendix 68-A ACM Survey Results

Appendix 68-C Building Drawings

Appendix 68-D Walkthrough Survey Data Sheets

Appendix 68-E Laboratory Certificate of Analysis

Appendix 68-F Sample Chain-of-Custody

Appendix B is not applicable to this building report.

APPENDIX 68-A ACM SURVEY RESULTS

ACM Survey Results for Building 68

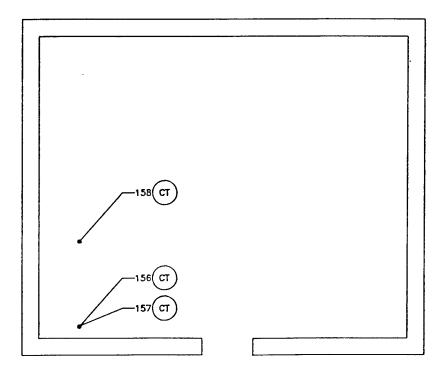
	Comments		2' x 4' w/fissures Sample 157 is a QC for Sample 156.
	Sample Results (% and type of asbestos)		None detected None detected None detected
	Sample #	Assume ACM	156 157 158
ıtity	Unit of Measure- ment (SF, LF or # of fittings)	R T	۳.
Quantity	Estimated Amount	396	ဖ စ ဗ
	Condition (Good, Fair, or Poor)	poog	D000
	Friability (Non, Low, Mod. or High)	Non	с 0 2
	Location (where material is found)	Roof	Throughout building
Material Description	Type (e.g., pipe insulation; floor tile)	Tar and felt	Ceiling tile
Material	Category (surfacing TSI or misc.)	Misc.	Misc.
	Homogen- eous Sample Area		7

Woodward-Clyde Federal Services July 3, 1991

D:\ASBESTOS/B68.asb

APPENDIX 68-C BUILDING DRAWINGS





LEGEND



+ DENOTES POSITIVE RESULTS

CLENT USATHAMA	LOCATION Camero	n Station	, Alex	andria, Virg	inia
Woodward-Clyde	TITLE			NG 68 OCATIONS	
Federal Services	PROJECT NO.	DRAWN BY:	LAL D	KTE: 57-91	DWG. NO. 68-SL
I Edel di Oci vices	3001-210	CHECKED BY:	F.B.C. \$0	CALE: N.T.S.	00-3L

APPENDIX 68-D WALKTHROUGH SURVEY DATA SHEETS

				Wolletterough Succession of the total of the tenth of the
Cameron Static. Building 68 Motor	port gos statum	tun exterior	RIOR	arde / 190
ing				
Masonry ∰ Steel/A	Steel/Aluminum	Mood □	Asbestos Cement Shingle	Asphalt Shingle
Other 🗆	_ Soffit □	П		
Sample Y N	Condition G	A A	Quantity SF	
Roof				
Shingle (asphalt/fiberglass)	Tar & Felt	Steel Panel	Fiberglass Panel	Other
Sample Y N	Condition G	F P	Quantity	SF
Exterior Mechanical Systems	<u>Sample</u>	Condition	Quantity	Location
Vent pipe	Z ×	GFP		
Chimney	×	G FF P		
Louvers	Z	G F P		
A/C Units	×	G F P		
Other	z ×	G F P		
			STRUCTURAL	
eams	Steel Joists/Beams	Wood Columns	s 🗆 Steel Column 🗖	Concrete Column
$\mathcal{M}asmr^{\prime}$ \mathcal{N} \mathcal{N} \mathcal{N} Sample \mathbf{Y} \mathcal{N}	Condition G	स	Quantity	SF
Sample Y N	Condition G	Ē.	Quantity	AS.
Firewalls - Steel	Masonry		Firedoor	
Sample Y N	Condition G	प	Quantity	SF
				Woodward-Clyde Federal Services

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2 of 4

BOILER, FURNANCE, ELECTRICAL/TELEPHONE

Cameron Statio

Building			XX		Inspector/Date:		Company of the Control of the Contro
	ID #	Insulated Y N	# Units	· Type of Insulation*	Sample Y N	Condition G F P	Quantity
Boiler							
Breeching							
Furnace							
Tanks/Vessels			-				
Elec./Telephone							
Other							
*Type of Insulation:							

1. Premold
2. Blanket
3. Aircell
4. Fiberglass

Trowelled-on
 Mud
 Other

Woodward-Clyde Federal Services

Cameron Station

HVAC

Inspector/Date:

Building	e &		//	<i>H</i>	Inspector/Date:	/Date:		
	Location	Insulated Y N	Type of Insulation*	Sample Y N	Condition G F P	Amount	Quantity SF/LF or # Fittings	Diam. of Pipe
Duct								
Pipe								
Fittings								
Other								

*Type of Insulation:
1. Premold
2. Blanket
3. Aircell
4. Fiberglass

5. Trowelled-on6. Mud7. Other

Woodward-Clyde Federal Services

November 19, 1990

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INTERIOR - CEILING/WALLS/FLOORS/MISC.

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	Quantity	396 5/												
te:	Condition G F P	0												
Inspector/Date:	Sample Y N	>			>		>							
	Location	throughout	O						1.1.					
	Color/Pattern	minoch	7						1	art payren				
× 6	Material*	2 × 4 C.7				mari fra	11/	Conolin & lich mars		metal 18 place sugher				, Material

Material
Zeiling
2x4 tile
2x2 tile
1x1 tile
1x2 tile
Plaster
Other

Floc 9

Walls Gypboard/Drywall Plaster Other

Floors 9x9 tile 12x12 tile Sheet Woodward-Clyde Federal Services

November 19, 1990

APPENDIX 68-E LABORATORY CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

and iNLA (#244) and iNVLAP (#1143) Accredited Laboratory

Woodward-Clyde Federal Services 1 Church St. Suite 404 Rockville, MD 20850

Attn: Sally Gaurdia

CERTIFICATE OF ANALYSIS

: Cameron Station Job Bite Bldg #

Job Number: 3001

Person Submitting: DAVID BARNES : 02/01/91 Date Analyzed Date Sampled

MICROSCOPY LIGHT POLARIZED <u>Б</u> SUMMARY

		COMMENT			
	ANALYST	ID**	ម្ល	ઇ	ខ្ល
		PARTICULATE	30-40	30-35	30-40
/ > TV		OTHER	ļ		!
S MATERI	INERAL FIBROUS ORGANIC	GLASS FIBERS OTHER	30~35	30-40	30-35
R FIBROU	FIBROUS	GLASS	30-35 30-35	30-35	30-35
/ OTHER PIBROUS MATERIAL &/	MINERAL	MOOT))))	Ì	!
/ * * * * * * * * * * * * * * * * * * *	ANTHOP-	OLITE HYLLITE	!	1	
	ACTIN-	OLITE		1	!
*	TREMO-	LITE		1	
ASBESTOS	CROCIDO- TREMO- ACTIN- ANTHOR-	LITE	1		!
1		MOSITE	i	1	
	CHRYSO-	TILE	!	;	;
	ASBESTOS CHRYSO-	PRESENT* TILE AMOSITE LITE	×	×	×
	SAMPLE	ព	156	157	158

** ANALYST ID CODE (SEE SIGNATURE)

N - ASBESTOS NOT OBSERVED

* P - ASBESTOS PRESENT

COMMENTS:

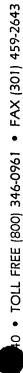
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Sample(s) analyzed by EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples.

G. Edward Carney

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information.







APPENDIX 68-F SAMPLE CHAIN-OF-CUSTODY FORMS

Woodward-Clyde deral Services

CHAIN OF CUSTODY RECORD - USATHAMA SAMPLES

WCFS Project No. 3001 Installation (2): CM Sample Program (3): BEI Laboratory (2): PC

COC By: D M 18-

BLDG 68

Sample Date: 0/ 1074 9/

Woodward-Ct, leral Services c/o Charles bissimett EACA, RPMO, Bldg. 17 Cameron Station

Woodward-Clyde Consultants One Church Street, Suite 404 Rockville, MD 20850 (301) 309~0800 Alexandria, VA (703) 274-6548

Admin. Office:

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Field Office:

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